

# **Supplemental Materials For: Assessment of goose-beaked whale responses to mid-frequency active sonar using a hierarchical hidden Markov model**

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You can view this file online at: <https://stacyderuiter.github.io/ziphius-hhmm/supplemental-materials.html>.

The online html version includes interactive versions of many figures (allowing you to zoom), which the PDF does not include.

## Supplemental Tables

### Dive-cycle Summary

Table S 1: Summary information about each foraging dive cycle included in the HHMM analysis.

Whale ID	Start Time (UTC)	State	Sonar before EOE?	MFAS RL	MFAS cSEL	Echosounder Present?	Impulsive Sounds Present?	Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)	Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
Zica-20191012-144029	2019-10-12 18:46:51.052	Typical	No	None	0	No	No	No	2.9	1.2	4	0.4	0.2	30.7	1.5	1.4
Zica-20191012-144029	2019-10-12 21:39:22.052	Variant	No	None	0	No	No	No	5.6	1.3	10	0.7	0.3	36.6	1.2	1.8
Zica-20191012-144029	2019-10-13 03:18:12.052	Variant	No	None	0	No	No	No	2.2	1.2	2	0.5	0.1	30.1	1.0	0.8
Zica-20191012-144029	2019-10-13 05:32:07.052	Variant	No	None	0	No	No	No	5.7	1.4	6	0.8	0.3	25.7	0.9	1.0
Zica-20191012-144029	2019-10-13 11:14:32.052	Variant	No	None	0	No	No	No	2.0	1.3	1	0.5	0.1	14.3	0.9	2.7
Zica-20191012-144029	2019-10-13 13:12:13.052	Typical	No	None	0	Yes	No	No	3.8	1.6	6	0.4	0.2	32.4	1.3	1.6
Zica-20191012-144029	2019-10-13 17:03:06.052	Variant	No	136.5	145.9	No	No	No	19.1	1.4	28	1.4	1.0	39.0	1.3	0.6
Zica-20191012-144029	2019-10-14 12:07:16.052	Typical	No	None	0	No	No	No	3.7	1.2	9	0.6	0.2	21.7	1.2	1.1
Zica-20191012-144029	2019-10-14 15:52:10.052	Typical	No	None	0	No	No	No	3.8	1.4	7	0.4	0.2	35.6	1.5	1.3
Zica-20191012-144029	2019-10-14 19:37:45.052	Typical	No	None	0	No	No	No	3.7	1.5	7	0.3	0.2	36.6	1.7	1.6
Zica-20191012-144029	2019-10-14 23:16:59.052	Variant	No	None	0	No	No	No	2.8	1.2	6	0.3	0.3	27.9	1.6	3.5
Zica-20191012-144029	2019-10-15 02:04:23.052	Typical	No	None	0	No	No	No	2.3	1.2	3	0.3	0.2	26.5	1.7	2.0
Zica-20191012-144029	2019-10-15 04:20:37.052	Typical	No	None	0	No	No	No	3.0	1.1	4	0.5	0.3	29.0	1.7	2.7
Zica-20191012-144029	2019-10-15 07:19:13.052	Variant	No	None	0	No	No	No	4.6	1.4	1	0.2	1.6	58.5	1.4	3.1
Zica-20191012-144029	2019-10-15 11:55:02.052	Variant	No	None	0	No	No	No	1.5	0.8	2	0.4	0.3	15.0	0.7	5.9
Zica-20191012-144029	2019-10-15 13:24:34.052	Variant	No	None	0	No	No	No	3.3	0.9	7	0.4	0.2	19.2	0.9	3.9
Zica-20191012-144029	2019-10-15 16:40:00.052	Typical	No	None	0	No	No	No	2.3	1.1	4	0.3	0.2	30.7	1.1	3.5
Zica-20191012-144029	2019-10-15 19:00:27.052	Typical	No	106.4	117.2	No	No	No	2.7	1.2	5	0.4	0.2	37.4	1.5	3.2
Zica-20191012-144029	2019-10-15 21:44:03.052	Typical	No	None	0	No	No	No	3.4	1.2	6	0.4	0.2	28.9	1.5	3.6
Zica-20191012-144029	2019-10-16 01:05:08.052	Variant	No	None	0	No	No	No	2.8	1.3	3	0.8	0.1	30.9	1.6	2.8
Zica-20191012-144029	2019-10-16 03:52:56.052	Variant	No	None	0	No	No	No	3.5	1.1	2	0.8	0.5	25.8	1.6	2.9

Whale ID	Start Time (UTC)	State	Sonar before EOE?	MFAS RL	MFAS cSEL	Echosounder Present?	Impulsive Sounds Present?	Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)	
Zica-20191012-144029	2019-10-16 07:20:53.052	Variant	No	None	0	No	No	No	1.7	1.4	1	0.1	0.2	24.5	1.8	3.5
Zica-20191012-144029	2019-10-16 09:03:12.052	Variant	No	None	0	No	No	No	2.3	1.7	1	0.4	0.2	20.4	1.8	2.1
Zica-20191012-144029	2019-10-16 11:24:09.052	Variant	No	None	0	No	No	No	1.5	1.2	0	NA	0.2	18.2	1.9	3.1
Zica-20191012-144029	2019-10-16 12:55:30.052	Variant	No	None	0	No	No	No	3.7	1.2	8	0.4	0.2	26.8	2.0	2.8
Zica-20191012-144029	2019-10-16 16:38:31.052	Variant	No	None	0	No	No	No	4.4	1.4	9	0.4	0.3	33.5	2.0	2.7
Zica-20191012-144029	2019-10-16 21:02:09.052	Variant	No	None	0	No	No	No	3.0	1.1	6	0.3	0.2	34.8	1.2	3.1
Zica-20191012-144029	2019-10-17 00:03:42.052	Variant	No	None	0	No	No	No	1.9	1.0	3	0.2	0.2	24.1	1.5	3.0
Zica-20191012-144029	2019-10-17 01:58:51.052	Variant	No	None	0	No	No	No	3.0	0.9	4	0.5	0.2	15.3	1.4	2.0
Zica-20191012-144029	2019-10-17 04:56:43.052	Variant	No	None	0	No	No	No	1.9	1.1	1	0.5	0.3	31.3	1.7	3.2
Zica-20191012-144029	2019-10-17 06:53:04.052	Variant	No	None	0	No	No	No	2.9	1.6	1	0.5	0.6	43.3	1.8	3.1
Zica-20191012-144029	2019-10-17 09:46:41.052	Variant	No	None	0	No	No	No	1.7	1.3	0	NA	0.3	35.3	1.7	3.8
Zica-20191012-144029	2019-10-17 11:26:54.052	Variant	No	None	0	No	No	No	2.5	1.3	6	0.2	0.3	25.1	1.6	1.6
Zica-20191012-144029	2019-10-17 13:56:52.052	Variant	No	None	0	No	No	No	2.6	1.1	7	0.3	0.2	24.4	1.6	1.2
Zica-20191012-144029	2019-10-17 16:30:51.052	Typical	No	None	0	No	No	No	3.3	1.2	8	0.3	0.2	31.1	1.0	0.7
Zica-20191012-144029	2019-10-17 19:50:04.052	Typical	No	None	0	No	No	No	2.5	1.2	5	0.3	0.2	37.5	1.6	1.5
Zica-20191012-144029	2019-10-17 22:22:02.052	Typical	No	None	0	No	No	No	NA	1.2	NA	NA	NA	40.4	1.8	NA
Zica-20191012-145101	2019-10-12 20:58:41.052	Variant	No	None	0	No	No	No	1.2	0.8	1	0.3	0.1	18.0	1.3	2.3
Zica-20191012-145101	2019-10-12 22:12:21.052	Variant	No	None	0	No	No	No	2.5	0.8	4	0.5	0.2	19.4	1.2	2.1
Zica-20191012-145101	2019-10-13 00:44:13.052	Typical	No	None	0	No	No	No	4.2	1.1	8	0.4	0.3	38.1	1.5	0.3
Zica-20191012-145101	2019-10-13 04:53:57.052	Typical	No	None	0	No	No	No	4.0	1.2	6	0.5	0.2	36.6	1.5	0.7
Zica-20191012-145101	2019-10-13 08:51:45.052	Typical	No	None	0	No	No	No	3.3	1.1	7	0.3	0.2	30.3	1.5	1.2
Zica-20191012-145101	2019-10-13 12:07:33.052	Typical	No	None	0	No	No	No	3.5	1.2	6	0.4	0.2	37.1	1.5	0.2
Zica-20191012-145101	2019-10-13 15:36:56.052	Typical	No	None	0	No	No	No	2.3	1.1	3	0.4	0.1	33.0	1.5	0.8
Zica-20191012-145101	2019-10-13 17:57:13.052	Typical	No	95.1	102.6	No	No	No	2.6	1.1	4	0.4	0.2	32.6	1.5	1.4

Whale ID	Start Time (UTC)	State	Sonar before EOE?					Impulsive Sounds Present?	Orca Sounds Present?	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)	Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)	
				MFAS RL	MFAS cSEL	Echosounder Present?	Pre-sent?										
Zica-20191012-145101	2019-10-13 20:36:10.052	Typical	Yes	147.9	145.1	No	No	No	No	2.3	1.0	4	0.3	0.2	28.2	1.4	0.9
Zica-20191012-145101	2019-10-13 22:53:17.052	Variant	Yes	136	138.8	No	No	No	No	6.3	1.1	11	0.6	0.4	29.4	1.5	1.3
Zica-20191012-145101	2019-10-14 05:12:39.052	Variant	No	None	0	No	Yes	No	No	2.7	1.4	3	0.3	0.2	35.2	1.5	2.2
Zica-20191012-145101	2019-10-14 07:55:46.052	Typical	No	None	0	No	Yes	No	No	2.2	1.2	3	0.3	0.1	43.7	1.5	1.0
Zica-20191012-145101	2019-10-14 10:08:51.052	Typical	No	None	0	No	Yes	No	No	2.7	1.0	2	0.4	0.3	28.8	1.5	2.4
Zica-20191012-145101	2019-10-14 12:51:55.052	Typical	No	None	0	No	Yes	No	No	3.3	1.0	6	0.4	0.2	26.0	1.3	1.3
Zica-20191012-145101	2019-10-14 16:11:24.052	Typical	No	None	0	No	Yes	No	No	2.1	1.0	3	0.4	0.1	27.2	1.2	1.4
Zica-20191012-145101	2019-10-14 18:14:56.052	Typical	No	None	0	No	No	No	No	2.5	1.2	4	0.3	0.2	35.4	1.5	0.5
Zica-20191012-145101	2019-10-14 20:46:16.052	Typical	No	None	0	Yes	Yes	No	No	3.4	1.1	6	0.4	0.2	30.4	1.4	0.3
Zica-20191012-145101	2019-10-15 00:13:00.052	Variant	No	None	0	Yes	Yes	No	No	4.1	0.7	3	0.3	1.6	3.5	0.8	4.1
Zica-20191012-145101	2019-10-15 04:19:01.052	Typical	No	None	0	No	Yes	No	No	3.0	1.3	3	0.4	0.3	34.3	1.3	1.4
Zica-20191012-145101	2019-10-15 07:16:16.052	Variant	No	None	0	No	No	No	No	3.4	1.2	1	0.3	0.5	30.3	1.4	2.9
Zica-20191012-145101	2019-10-15 10:42:44.052	Variant	No	None	0	No	Yes	No	No	2.3	0.8	1	0.3	0.2	19.9	0.9	3.2
Zica-20191012-145101	2019-10-15 12:58:49.052	Variant	No	None	0	No	No	No	No	1.8	1.0	2	0.3	0.1	27.9	1.1	1.7
Zica-20191012-145101	2019-10-15 14:44:48.052	Variant	No	None	0	No	No	No	No	2.2	0.9	4	0.3	0.1	21.6	1.1	1.3
Zica-20191012-145101	2019-10-15 16:59:48.052	Typical	No	None	0	No	Yes	No	No	2.7	1.1	4	0.3	0.2	31.3	1.4	0.7
Zica-20191012-145101	2019-10-15 19:44:07.052	Typical	No	None	0	No	No	No	No	2.9	1.1	5	0.4	0.3	27.4	1.3	1.6
Zica-20191012-145101	2019-10-15 22:37:12.052	Variant	No	None	0	No	Yes	No	No	6.2	1.1	10	0.5	0.9	31.3	1.4	0.5
Zica-20191012-145101	2019-10-16 04:50:03.052	Typical	No	None	0	No	Yes	No	No	3.8	1.2	6	0.4	0.2	33.0	1.3	0.7
Zica-20191012-145101	2019-10-16 08:38:23.052	Typical	No	None	0	No	Yes	No	No	2.8	1.1	4	0.4	0.2	27.5	1.1	1.0
Zica-20191012-145101	2019-10-16 11:27:21.052	Typical	No	None	0	No	Yes	No	No	2.9	1.0	6	0.4	0.2	28.6	1.3	1.0
Zica-20191012-145101	2019-10-16 14:22:29.052	Typical	No	None	0	No	No	No	No	3.5	1.1	6	0.5	0.2	27.3	1.2	1.5
Zica-20191012-145101	2019-10-16 17:50:04.052	Typical	No	140.1	148.8	No	No	No	No	4.1	1.2	7	0.5	0.2	34.8	1.3	1.1
Zica-20191012-145101	2019-10-16 21:53:49.052	Typical	No	None	0	No	Yes	No	No	2.1	1.1	4	0.3	0.1	25.0	1.5	0.6

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds			Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?					Present?	Present?				
Zica-20191012-145101	2019-10-16 23:59:45.052	Typical	No	None	0	No	Yes	No	2.9	1.3	4	0.3	0.3	36.0	1.5	1.1
Zica-20191012-145101	2019-10-17 02:54:01.052	Typical	No	None	0	No	Yes	No	3.0	1.1	4	0.5	0.2	34.4	1.5	0.5
Zica-20191012-145101	2019-10-17 05:53:16.052	Typical	No	None	0	No	Yes	No	3.0	1.1	4	0.4	0.3	36.0	1.4	0.9
Zica-20191012-145101	2019-10-17 08:55:31.052	Variant	Yes	107.4	122.2	No	No	No	3.5	1.1	2	0.3	1.6	29.6	1.4	5.7
Zica-20191012-145101	2019-10-17 12:26:56.052	Variant	No	None	0	No	No	No	1.9	0.9	3	0.4	0.2	21.7	1.1	2.3
Zica-20191012-145101	2019-10-17 14:21:53.052	Variant	No	None	0	No	No	No	2.0	0.9	3	0.3	0.2	18.6	1.2	1.5
Zica-20191012-145101	2019-10-17 16:23:04.052	Variant	No	None	0	No	No	No	2.9	0.9	5	0.4	0.3	24.6	1.1	3.0
Zica-20191012-145101	2019-10-17 19:17:00.052	Variant	No	None	0	No	No	No	2.2	0.9	3	0.4	0.2	23.9	1.0	3.6
Zica-20191012-145101	2019-10-17 21:28:56.052	Variant	No	None	0	No	No	No	1.7	0.9	2	0.4	0.1	20.5	1.1	2.0
Zica-20191012-145101	2019-10-17 23:11:29.052	Variant	No	None	0	No	No	No	NA	0.9	NA	NA	NA	26.2	1.2	NA
Zica-20191111-94810	2019-11-12 00:37:49.052	Typical	No	None	0	No	No	No	2.5	1.1	4	0.6	0.2	35.3	1.6	1.4
Zica-20191111-94810	2019-11-12 03:09:32.052	Typical	No	None	0	No	No	No	2.5	1.3	3	0.5	0.1	33.5	1.5	2.0
Zica-20191111-94810	2019-11-12 05:42:22.052	Typical	No	None	0	No	Yes	No	2.8	1.4	3	0.4	0.2	34.5	1.6	1.1
Zica-20191111-94810	2019-11-12 08:27:50.052	Variant	No	None	0	No	Yes	No	1.7	1.4	1	0.2	0.1	32.8	1.6	0.1
Zica-20191111-94810	2019-11-12 10:09:44.052	Variant	No	None	0	No	No	No	2.4	1.3	3	0.5	0.2	21.0	1.6	2.0
Zica-20191111-94810	2019-11-12 12:35:04.052	Variant	No	None	0	No	No	No	2.4	1.1	4	0.3	0.2	19.2	1.7	1.5
Zica-20191111-94810	2019-11-12 14:58:11.052	Typical	No	None	0	No	No	No	3.6	1.3	6	0.4	0.2	35.7	1.7	1.7
Zica-20191111-94810	2019-11-12 18:36:08.052	Typical	No	None	0	No	No	No	2.6	1.3	4	0.3	0.2	46.0	1.7	1.5
Zica-20191111-94810	2019-11-12 21:10:10.052	Typical	No	None	0	No	No	No	2.1	1.1	3	0.3	0.2	41.4	1.7	1.3
Zica-20191111-94810	2019-11-12 23:17:11.052	Variant	No	None	0	No	No	No	4.1	1.1	7	0.4	0.6	37.7	1.6	2.0
Zica-20191111-94810	2019-11-13 03:22:10.052	Variant	No	None	0	No	Yes	No	3.6	0.9	7	0.5	0.4	30.4	1.2	1.0
Zica-20191111-94810	2019-11-13 07:00:16.052	Variant	No	None	0	No	Yes	No	0.7	0.7	0	NA	0.0	14.3	1.0	1.8
Zica-20191111-94810	2019-11-13 07:44:39.052	Variant	No	None	0	Yes	No	No	5.2	0.9	11	0.5	0.5	13.3	1.0	1.2
Zica-20191111-94810	2019-11-13 12:55:59.052	Variant	No	None	0	No	No	No	3.2	0.7	5	0.6	0.2	14.0	1.0	2.5

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds				Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?	Present?										
Zica-20191111-94810	2019-11-13 16:07:03.052	Typical	No	None	0	No	No	No	3.3	1.1	5	0.5	0.2	26.5	1.2	1.9	
Zica-20191111-94810	2019-11-13 19:22:08.052	Typical	No	None	0	No	No	No	2.7	1.1	4	0.4	0.2	32.0	1.3	1.8	
Zica-20191111-94810	2019-11-13 22:03:50.052	Typical	No	None	0	No	No	No	2.6	1.1	5	0.3	0.2	37.2	1.0	1.1	
Zica-20191111-94810	2019-11-14 00:41:54.052	Typical	No	None	0	No	No	No	2.8	1.1	4	0.4	0.3	36.1	1.5	0.4	
Zica-20191111-94810	2019-11-14 03:28:12.052	Typical	No	None	0	No	No	No	3.1	1.2	4	0.4	0.2	31.4	1.5	0.5	
Zica-20191111-94810	2019-11-14 06:36:11.052	Typical	No	None	0	No	No	No	3.1	1.3	4	0.4	0.2	37.3	1.5	0.8	
Zica-20191111-94810	2019-11-14 09:44:12.052	Typical	No	None	0	No	No	No	3.4	1.3	4	0.4	0.3	38.3	1.5	0.5	
Zica-20191111-94810	2019-11-14 13:06:04.052	Typical	No	None	0	Yes	No	No	4.6	1.2	8	0.5	0.3	33.1	1.5	0.1	
Zica-20191111-94810	2019-11-14 17:39:37.052	Typical	No	None	0	No	No	No	2.7	1.4	3	0.4	0.2	33.0	1.5	0.0	
Zica-20191111-94810	2019-11-14 20:23:18.052	Typical	No	None	0	No	No	No	2.6	1.3	3	0.4	0.2	33.0	1.5	1.8	
Zica-20191111-94810	2019-11-14 23:00:48.052	Typical	Yes	103.4	110.6	No	No	No	2.6	1.1	3	0.4	0.2	24.9	1.1	1.6	
Zica-20191111-94810	2019-11-15 01:37:36.052	Variant	No	141.2	137.2	No	No	No	9.2	1.0	13	1.2	0.7	31.1	1.5	1.3	
Zica-20191111-94810	2019-11-15 10:46:51.052	Typical	No	None	0	No	No	No	3.0	1.3	5	0.4	0.2	36.2	1.5	1.1	
Zica-20191111-94810	2019-11-15 13:49:06.052	Typical	No	None	0	Yes	No	No	2.7	1.4	3	0.5	0.2	40.5	1.6	1.7	
Zica-20191111-94810	2019-11-15 16:31:54.052	Typical	No	None	0	No	No	No	3.8	1.3	6	0.6	0.2	39.5	1.5	1.8	
Zica-20191111-94810	2019-11-15 20:17:48.052	Typical	No	None	0	No	No	No	1.9	1.0	2	0.4	0.2	27.0	1.0	2.2	
Zica-20191111-94810	2019-11-15 22:09:36.052	Typical	No	None	0	No	No	No	1.9	1.0	2	0.4	0.1	36.7	1.0	3.6	
Zica-20191111-94810	2019-11-16 00:06:20.052	Typical	No	None	0	No	No	No	4.3	1.3	6	0.5	0.3	40.5	1.5	1.2	
Zica-20191111-94810	2019-11-16 04:23:21.052	Typical	No	97.5	108	No	No	No	3.4	1.1	5	0.5	0.2	26.4	1.5	2.3	
Zica-20191111-94810	2019-11-16 07:49:35.052	Typical	Yes	119.9	125.6	No	No	No	2.9	1.2	5	0.4	0.2	37.8	1.4	1.8	
Zica-20191111-94810	2019-11-16 10:42:57.052	Typical	No	None	0	No	No	No	4.5	1.3	7	0.6	0.3	41.0	1.6	0.9	
Zica-20191111-94810	2019-11-16 15:10:21.052	Typical	No	None	0	No	No	No	2.6	1.3	3	0.4	0.2	38.7	1.4	2.3	
Zica-20191111-94810	2019-11-16 17:46:06.052	Typical	No	None	0	No	No	No	2.1	1.2	2	0.4	0.1	37.9	1.5	2.5	
Zica-20191111-94810	2019-11-16 19:50:46.052	Typical	No	None	0	No	No	No	3.4	1.1	5	0.4	0.3	39.0	1.1	1.9	

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds			Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?					NA	NA				
Zica-20191111-94810	2019-11-16 23:12:16.052	Typical	No	None	0	No	No	NA	1.4	NA	NA	NA	42.0	1.5	NA	
Zica-20191117-195993	2019-11-17 20:12:57.052	Variant	No	None	0	No	No	No	2.7	0.7	4	0.5	0.2	20.0	0.8	4.1
Zica-20191117-195993	2019-11-17 22:53:53.052	Typical	No	None	0	No	No	No	NA	1.3	NA	NA	NA	47.2	1.4	NA
Zica-20211112-94819	2021-11-12 22:03:22.052	Typical	No	None	0	No	No	No	2.5	1.2	3	0.4	0.2	37.5	1.7	3.1
Zica-20211112-94819	2021-11-13 00:31:32.052	Typical	No	None	0	No	No	No	2.9	1.2	4	0.4	0.2	40.4	1.7	1.6
Zica-20211112-94819	2021-11-13 03:23:50.052	Typical	No	None	0	No	No	No	4.0	1.2	7	0.4	0.3	40.9	1.8	0.9
Zica-20211112-94819	2021-11-13 07:22:40.052	Typical	No	None	0	No	No	No	2.4	1.2	3	0.4	0.2	42.9	1.8	1.9
Zica-20211112-94819	2021-11-13 09:44:30.052	Typical	No	None	0	No	No	No	3.0	1.1	4	0.4	0.3	39.4	1.8	1.3
Zica-20211112-94819	2021-11-13 12:46:01.052	Typical	No	None	0	No	No	No	3.4	1.1	6	0.4	0.2	37.5	1.7	0.7
Zica-20211112-94819	2021-11-13 16:12:39.052	Typical	No	None	0	No	No	No	3.5	1.1	6	0.4	0.3	39.3	1.7	1.0
Zica-20211112-94819	2021-11-13 19:43:27.052	Typical	No	None	0	No	No	No	3.9	1.1	6	0.5	0.3	39.3	1.7	0.0
Zica-20211112-94819	2021-11-13 23:35:46.052	Typical	No	None	0	No	No	No	3.0	1.2	5	0.3	0.2	41.4	1.7	0.4
Zica-20211112-94819	2021-11-14 02:36:12.052	Typical	No	None	0	No	No	No	2.7	1.1	4	0.4	0.2	41.0	1.7	1.2
Zica-20211112-94819	2021-11-14 05:19:12.052	Typical	No	None	0	No	No	No	3.4	1.1	6	0.4	0.3	39.5	1.7	1.2
Zica-20211112-94819	2021-11-14 08:44:06.052	Typical	No	None	0	No	No	No	4.7	1.2	8	0.6	0.4	37.1	1.7	1.2
Zica-20211112-94819	2021-11-14 13:26:53.052	Typical	No	None	0	No	No	No	3.0	1.0	4	0.5	0.2	26.6	1.1	1.7
Zica-20211112-94819	2021-11-14 16:25:03.052	Typical	No	None	0	No	No	No	3.0	1.1	4	0.5	0.2	39.3	1.7	1.1
Zica-20211112-94819	2021-11-14 19:24:33.052	Typical	No	None	0	No	No	No	3.0	1.2	4	0.5	0.2	44.3	1.7	1.4
Zica-20211112-94819	2021-11-14 22:21:35.052	Typical	No	None	0	No	No	No	3.2	1.1	5	0.4	0.2	40.0	1.7	1.0
Zica-20211112-94819	2021-11-15 01:34:14.052	Typical	No	None	0	No	No	No	2.8	1.0	5	0.4	0.2	40.2	1.7	1.5
Zica-20211112-94819	2021-11-15 04:24:21.052	Typical	No	None	0	No	No	No	2.7	1.0	4	0.4	0.2	39.1	1.7	1.0
Zica-20211112-94819	2021-11-15 07:05:27.052	Typical	Yes	89.2	87.7	No	No	No	2.8	1.0	5	0.3	0.3	38.5	1.7	1.9
Zica-20211112-94819	2021-11-15 09:53:35.052	Typical	No	81.8	80.9	No	No	No	2.9	1.1	5	0.4	0.3	42.9	1.7	1.2
Zica-20211112-94819	2021-11-15 12:47:35.052	Typical	No	None	0	No	No	No	4.4	1.2	7	0.5	0.3	41.2	1.7	1.0

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds				Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)	Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?	Present?									
Zica-20211112-94819	2021-11-15 17:09:42.052	Variant	No	None	0	No	No	No	3.0	1.3	4	0.5	0.2	9.4	1.7	2.2
Zica-20211112-94819	2021-11-15 20:06:51.052	Typical	No	None	0	No	No	No	4.3	1.3	8	0.4	0.3	38.9	0.7	2.2
Zica-20211112-94819	2021-11-16 00:24:40.052	Typical	No	None	0	No	No	No	3.2	1.0	7	0.3	0.3	31.4	1.7	0.9
Zica-20211112-94819	2021-11-16 03:37:25.052	Typical	No	None	0	No	No	No	3.2	1.1	5	0.4	0.2	28.4	1.7	1.0
Zica-20211112-94819	2021-11-16 06:48:34.052	Variant	No	None	0	No	No	No	2.7	1.0	6	0.3	0.2	32.4	1.7	2.4
Zica-20211112-94819	2021-11-16 09:28:12.052	Variant	No	None	0	No	No	No	0.8	0.7	0	NA	0.1	30.9	1.8	3.3
Zica-20211112-94819	2021-11-16 10:16:46.052	Variant	No	None	0	No	No	No	2.7	0.6	6	0.5	0.4	2.4	1.1	1.9
Zica-20211112-94819	2021-11-16 13:00:48.052	Typical	No	None	0	No	No	No	4.3	1.0	8	0.5	0.3	30.6	1.8	1.3
Zica-20211112-94819	2021-11-16 17:16:23.052	Typical	No	None	0	No	No	No	4.7	1.0	9	0.5	0.4	31.1	1.8	1.4
Zica-20211112-94819	2021-11-16 21:55:32.052	Typical	Yes	122.6	118.1	No	No	No	2.6	1.0	4	0.4	0.2	26.1	1.1	2.4
Zica-20211112-94819	2021-11-17 00:34:28.052	Typical	Yes	124.9	123.9	No	No	No	2.7	1.0	5	0.4	0.3	32.5	1.6	1.6
Zica-20211112-94819	2021-11-17 03:19:22.052	Typical	No	None	0	No	No	No	2.7	0.9	5	0.5	0.2	27.5	1.1	0.7
Zica-20211112-94819	2021-11-17 06:03:24.052	Variant	Yes	140.3	136.1	No	No	No	1.9	0.9	3	0.3	0.6	28.9	1.2	3.9
Zica-20211112-94819	2021-11-17 07:59:25.052	Variant	No	None	0	No	No	No	2.3	1.0	3	0.4	0.3	5.7	1.6	3.5
Zica-20211112-94819	2021-11-17 10:15:54.052	Variant	No	None	0	No	No	No	2.6	1.0	5	0.4	0.3	26.4	0.8	1.3
Zica-20211112-94819	2021-11-17 12:53:57.052	Variant	No	None	0	No	No	No	3.8	1.0	8	0.5	0.3	27.8	1.1	1.6
Zica-20211112-94819	2021-11-17 16:41:19.052	Variant	No	None	0	No	No	No	3.8	1.0	6	0.5	0.4	34.8	1.6	1.8
Zica-20211112-94819	2021-11-17 20:32:17.052	Typical	No	None	0	No	No	No	3.8	1.3	5	0.6	0.3	39.3	1.6	1.7
Zica-20211112-94819	2021-11-18 00:22:29.052	Typical	No	None	0	No	No	No	3.7	1.4	5	0.5	0.3	40.3	1.6	0.4
Zica-20211112-94819	2021-11-18 04:03:51.052	Typical	No	None	0	No	No	No	3.4	1.6	4	0.5	0.2	42.4	1.7	1.1
Zica-20211112-94819	2021-11-18 07:27:39.052	Typical	No	None	0	No	No	No	3.2	1.3	4	0.5	0.2	37.9	1.8	1.3
Zica-20211112-94819	2021-11-18 10:42:02.052	Typical	No	None	0	No	No	No	4.5	1.5	6	0.6	0.3	30.6	1.8	0.6
Zica-20211112-94819	2021-11-18 15:12:32.052	Typical	No	None	0	No	No	No	2.7	1.3	3	0.4	0.2	41.8	1.8	0.9
Zica-20211112-94819	2021-11-18 17:52:40.052	Typical	No	88.9	87.4	No	No	No	3.0	1.1	5	0.4	0.2	41.3	1.8	1.6

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds				Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?	Present?										
Zica-20211112-94819	2021-11-18 20:52:08.052	Typical	Yes	118.3	116.2	No	No	No	4.7	1.2	7	0.5	0.4	36.1	1.8	2.4	
Zica-20211112-94819	2021-11-19 01:35:09.052	Typical	No	None	0	No	No	No	4.0	1.4	5	0.6	0.3	35.7	1.7	1.2	
Zica-20211112-94819	2021-11-19 05:37:29.052	Typical	No	105.5	108	No	No	No	3.2	1.5	4	0.4	0.2	39.2	1.7	0.2	
Zica-20211112-94819	2021-11-19 08:51:47.052	Typical	No	None	0	No	No	No	3.6	1.2	4	0.6	0.3	39.9	1.6	0.8	
Zica-20211112-94819	2021-11-19 12:25:24.052	Typical	No	None	0	No	No	No	4.5	1.4	6	0.6	0.3	39.2	1.8	1.9	
Zica-20211112-94819	2021-11-19 16:54:31.052	Typical	No	None	0	No	No	No	3.4	1.4	4	0.5	0.2	38.9	1.5	3.3	
Zica-20211112-94819	2021-11-19 20:17:49.052	Typical	No	None	0	No	No	No	NA	1.1	NA	NA	NA	35.6	1.0	NA	
Zica-20211113-195993	2021-11-13 19:40:02.052	Variant	No	None	0	No	No	No	0.8	0.8	0	NA	0.1	25.5	1.5	1.9	
Zica-20211113-195993	2021-11-13 20:30:26.052	Variant	No	None	0	No	No	No	2.7	1.0	4	0.5	0.2	25.4	1.5	1.0	
Zica-20211113-195993	2021-11-13 23:14:02.052	Variant	No	None	0	No	No	No	1.4	1.0	1	0.3	0.1	27.8	1.6	0.8	
Zica-20211113-195993	2021-11-14 00:35:36.052	Variant	No	None	0	No	No	No	1.9	0.9	3	0.3	0.1	24.0	1.6	0.9	
Zica-20211113-195993	2021-11-14 02:26:36.052	Variant	No	None	0	No	No	No	1.0	0.8	1	0.2	0.1	27.6	1.6	1.3	
Zica-20211113-195993	2021-11-14 03:29:22.052	Typical	No	None	0	No	No	No	2.5	0.9	4	0.4	0.2	32.5	0.7	2.3	
Zica-20211113-195993	2021-11-14 05:57:22.052	Typical	No	None	0	No	No	No	2.4	0.8	4	0.4	0.2	30.0	0.8	1.0	
Zica-20211113-195993	2021-11-14 08:22:24.052	Variant	No	None	0	No	No	No	0.8	0.7	0	NA	0.1	26.4	1.1	2.5	
Zica-20211113-195993	2021-11-14 09:07:35.052	Variant	No	None	0	No	No	No	1.2	0.5	2	0.3	0.1	14.1	0.7	0.1	
Zica-20211113-195993	2021-11-14 10:18:20.052	Variant	No	None	0	No	No	No	0.6	0.5	0	NA	0.1	16.9	1.1	0.6	
Zica-20211113-195993	2021-11-14 10:55:09.052	Variant	No	None	0	No	No	No	1.8	0.6	3	0.4	0.2	15.0	1.2	1.0	
Zica-20211113-195993	2021-11-14 12:40:46.052	Variant	No	None	0	No	No	No	0.7	0.6	0	NA	0.1	18.3	1.1	2.3	
Zica-20211113-195993	2021-11-14 13:20:24.052	Variant	No	None	0	No	No	No	3.6	0.8	6	0.5	0.2	18.6	1.1	0.9	
Zica-20211113-195993	2021-11-14 16:54:31.052	Variant	No	None	0	No	No	No	1.4	1.0	1	0.3	0.1	28.6	1.1	1.4	
Zica-20211113-195993	2021-11-14 18:18:35.052	Variant	No	None	0	No	No	No	1.8	1.0	2	0.4	0.1	19.8	1.1	1.4	
Zica-20211113-195993	2021-11-14 20:09:00.052	Variant	No	None	0	No	No	No	1.3	0.8	1	0.4	0.1	19.0	1.1	1.4	
Zica-20211113-195993	2021-11-14 21:27:53.052	Variant	No	None	0	No	No	No	3.1	0.9	5	0.4	0.2	24.7	1.2	1.9	

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds			Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?					Present?	Present?				
Zica-20211113-195993	2021-11-15 00:32:31.052	Variant	No	None	0	No	No	No	1.1	0.8	1	0.2	0.1	27.6	1.1	2.2
Zica-20211113-195993	2021-11-15 01:39:34.052	Variant	No	None	0	No	No	No	2.5	0.6	5	0.5	0.3	20.8	1.1	1.1
Zica-20211113-195993	2021-11-15 04:08:14.052	Variant	No	None	0	No	No	No	1.8	0.8	2	0.4	0.2	23.9	0.8	4.1
Zica-20211113-195993	2021-11-15 05:53:51.052	Variant	No	None	0	No	No	No	1.3	0.8	1	0.4	0.1	27.4	0.7	1.0
Zica-20211113-195993	2021-11-15 07:11:27.052	Variant	No	None	0	No	No	No	2.5	0.8	4	0.5	0.2	26.0	0.8	2.3
Zica-20211113-195993	2021-11-15 09:44:17.052	Variant	No	None	0	No	No	No	3.4	0.8	6	0.4	0.3	29.0	1.1	2.0
Zica-20211113-195993	2021-11-15 13:09:07.052	Variant	No	None	0	No	No	No	4.0	1.1	7	0.6	0.3	26.5	1.0	0.6
Zica-20211113-195993	2021-11-15 17:08:14.052	Variant	No	None	0	No	No	No	3.1	1.1	4	0.6	0.3	22.9	0.9	2.1
Zica-20211113-195993	2021-11-15 20:15:47.052	Variant	No	None	0	No	No	No	2.6	0.4	7	0.4	0.3	5.5	0.9	5.3
Zica-20211113-195993	2021-11-15 22:50:35.052	Variant	No	None	0	No	No	No	0.9	0.6	1	0.2	0.1	11.7	0.6	4.6
Zica-20211113-195993	2021-11-15 23:41:58.052	Variant	No	None	0	No	No	No	1.2	0.8	1	0.3	0.1	19.7	0.8	4.2
Zica-20211113-195993	2021-11-16 00:53:00.052	Variant	No	None	0	No	No	No	0.8	0.6	1	0.1	0.1	14.5	1.0	3.5
Zica-20211113-195993	2021-11-16 01:38:19.052	Variant	No	None	0	No	No	No	0.5	0.5	0	NA	0.0	8.4	1.0	3.7
Zica-20211113-195993	2021-11-16 02:09:30.052	Variant	No	None	0	No	No	No	0.9	0.7	1	0.2	0.1	20.9	1.0	3.5
Zica-20211113-195993	2021-11-16 03:04:06.052	Variant	No	None	0	No	No	No	1.7	0.6	4	0.3	0.2	17.6	0.7	2.6
Zica-20211113-195993	2021-11-16 04:49:01.052	Variant	No	None	0	No	No	No	1.9	1.0	3	0.3	0.2	28.2	1.5	1.5
Zica-20211113-195993	2021-11-16 06:40:13.052	Variant	No	None	0	No	No	No	2.8	1.2	4	0.4	0.2	39.2	0.8	1.8
Zica-20211113-195993	2021-11-16 09:25:56.052	Variant	No	None	0	No	No	No	2.7	1.1	5	0.4	0.2	34.1	1.8	2.4
Zica-20211113-195993	2021-11-16 12:09:42.052	Variant	No	None	0	No	No	No	4.6	1.2	10	0.6	0.2	31.8	1.8	1.9
Zica-20211113-195993	2021-11-16 16:43:22.052	Variant	No	None	0	No	No	No	3.6	1.0	8	0.4	0.2	25.3	1.7	2.2
Zica-20211113-195993	2021-11-16 20:17:20.052	Variant	No	107.9	115.6	No	No	No	3.4	0.8	6	0.5	0.2	17.2	0.9	2.0
Zica-20211113-195993	2021-11-16 23:44:01.052	Variant	No	None	0	No	No	No	2.3	0.9	5	0.3	0.1	20.0	1.0	1.3
Zica-20211113-195993	2021-11-17 02:00:50.052	Variant	No	None	0	No	No	No	1.0	0.6	1	0.3	0.1	15.2	1.0	0.8
Zica-20211113-195993	2021-11-17 03:00:50.052	Variant	No	None	0	No	No	No	1.2	0.7	2	0.2	0.1	21.6	0.7	2.1

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds			Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?					Present?	Present?				
Zica-20211113-195993	2021-11-17 04:13:44.052	Variant	No	None	0	No	No	No	1.5	0.7	3	0.3	0.1	19.9	0.7	2.8
Zica-20211113-195993	2021-11-17 05:44:48.052	Variant	No	None	0	No	No	No	1.1	0.6	2	0.3	0.1	14.4	0.7	3.3
Zica-20211113-195993	2021-11-17 06:51:47.052	Variant	Yes	118.2	125.7	No	No	No	1.9	0.6	4	0.3	0.1	21.0	0.8	3.1
Zica-20211113-195993	2021-11-17 08:47:44.052	Typical	No	None	0	No	No	No	3.1	1.2	5	0.4	0.2	27.2	0.7	1.4
Zica-20211113-195993	2021-11-17 11:51:09.052	Variant	No	None	0	No	No	No	1.4	1.1	1	0.2	0.1	26.6	1.1	2.2
Zica-20211113-195993	2021-11-17 13:14:01.052	Variant	No	None	0	No	No	No	3.3	0.8	5	0.5	0.2	22.1	1.0	1.0
Zica-20211113-195993	2021-11-17 16:29:47.052	Variant	No	None	0	No	No	No	1.8	0.9	2	0.5	0.1	25.3	1.0	1.7
Zica-20211113-195993	2021-11-17 18:20:32.052	Variant	No	None	0	No	No	No	1.8	1.0	2	0.4	0.1	23.8	1.1	3.0
Zica-20211113-195993	2021-11-17 20:11:11.052	Variant	No	None	0	No	No	No	NA	1.0	NA	NA	NA	19.2	1.0	NA
Zica-20220112-195994	2022-01-12 18:45:25.053	Typical	No	77.6	71.3	No	No	No	1.9	1.0	2	0.4	0.1	36.6	1.4	1.6
Zica-20220112-195994	2022-01-12 20:38:10.053	Typical	No	76.3	69.9	No	No	No	3.0	1.0	5	0.4	0.2	42.1	1.3	0.7
Zica-20220112-195994	2022-01-12 23:37:05.053	Typical	No	None	0	No	No	No	3.0	1.0	4	0.6	0.2	40.9	1.5	1.0
Zica-20220112-195994	2022-01-13 02:39:34.053	Typical	No	None	0	No	No	No	2.0	1.0	2	0.5	0.1	40.3	1.4	0.2
Zica-20220112-195994	2022-01-13 04:39:56.053	Typical	No	None	0	No	No	No	1.5	1.0	1	0.4	0.1	38.7	1.5	2.6
Zica-20220112-195994	2022-01-13 06:09:22.053	Typical	No	None	0	No	No	No	1.9	0.9	2	0.5	0.2	37.0	1.5	0.5
Zica-20220112-195994	2022-01-13 08:06:20.053	Typical	No	None	0	No	No	No	2.2	0.9	3	0.4	0.2	37.1	1.6	0.4
Zica-20220112-195994	2022-01-13 10:17:09.053	Typical	No	None	0	No	No	No	2.0	0.9	2	0.4	0.2	38.0	1.4	0.8
Zica-20220112-195994	2022-01-13 12:16:52.053	Typical	No	None	0	No	No	No	2.2	1.0	2	0.4	0.2	32.1	1.5	0.8
Zica-20220112-195994	2022-01-13 14:31:30.053	Typical	No	None	0	No	No	No	3.4	1.3	5	0.5	0.2	40.8	1.6	1.1
Zica-20220112-195994	2022-01-13 17:56:47.053	Typical	No	102.8	107.8	No	No	No	3.6	1.3	5	0.5	0.2	44.8	1.6	0.3
Zica-20220112-195994	2022-01-13 21:32:29.053	Typical	Yes	119.1	125.2	No	No	No	3.7	1.0	5	0.6	0.2	40.5	1.6	1.3
Zica-20220112-195994	2022-01-14 01:16:49.053	Typical	No	None	0	No	No	No	3.5	1.3	4	0.5	0.2	42.0	1.7	0.8
Zica-20220112-195994	2022-01-14 04:44:14.053	Typical	No	None	0	No	No	No	3.5	1.4	4	0.6	0.2	45.4	1.6	0.9
Zica-20220112-195994	2022-01-14 08:16:59.053	Typical	No	None	0	No	No	No	2.4	1.2	3	0.4	0.1	37.4	1.6	1.1

Whale ID	Start Time (UTC)	State	Sonar before EOE?	MFAS RL	MFAS cSEL	Echosounder Present?	Impulsive Sounds Present?	Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)	
Zica-20220112-195994	2022-01-14 10:40:06.053	Typical	No	None	0	No	No	No	1.8	1.2	2	0.3	0.1	38.3	1.4	1.7
Zica-20220112-195994	2022-01-14 12:30:49.053	Typical	No	None	0	No	No	No	1.4	1.0	1	0.4	0.1	37.8	1.1	1.2
Zica-20220112-195994	2022-01-14 13:57:27.053	Typical	No	None	0	No	No	No	4.1	1.0	6	0.5	0.2	28.7	1.5	1.1
Zica-20220112-195994	2022-01-14 18:02:47.053	Typical	No	None	0	No	No	No	4.2	1.3	6	0.7	0.2	43.0	1.6	1.1
Zica-20220112-195994	2022-01-14 22:16:27.053	Typical	No	None	0	No	No	No	3.5	1.3	4	0.6	0.2	37.7	1.1	0.5
Zica-20220112-195994	2022-01-15 01:47:33.053	Typical	No	None	0	No	No	No	2.2	1.4	2	0.4	0.1	36.1	1.7	1.2
Zica-20220112-195994	2022-01-15 04:02:12.053	Typical	No	None	0	No	No	No	2.0	1.2	2	0.3	0.1	36.9	1.7	1.5
Zica-20220112-195994	2022-01-15 06:03:56.053	Variant	No	139	143.9	No	No	No	16.9	1.2	24	1.0	1.6	40.0	1.7	0.7
Zica-20220112-195994	2022-01-15 23:00:12.053	Typical	No	None	0	No	No	No	3.1	1.3	3	0.6	0.1	31.6	1.6	2.6
Zica-20220112-195994	2022-01-16 02:05:32.053	Typical	No	None	0	No	No	No	2.3	1.3	2	0.5	0.1	31.0	1.6	2.6
Zica-20220112-195994	2022-01-16 04:26:04.053	Typical	No	None	0	No	No	No	1.7	1.2	1	0.4	0.1	26.5	1.7	2.1
Zica-20220112-195994	2022-01-16 06:07:13.053	Typical	No	None	0	No	No	No	2.7	1.3	3	0.5	0.2	41.7	1.7	2.1
Zica-20220112-195994	2022-01-16 08:50:31.053	Typical	No	None	0	No	No	No	2.3	1.2	2	0.5	0.2	42.4	1.7	2.6
Zica-20220112-195994	2022-01-16 11:09:17.053	Typical	No	None	0	No	No	No	2.4	1.3	2	0.4	0.2	39.8	1.8	1.5
Zica-20220112-195994	2022-01-16 13:35:07.053	Typical	No	None	0	No	No	No	3.9	1.1	5	0.6	0.2	35.0	1.8	1.0
Zica-20220112-195994	2022-01-16 17:26:19.053	Typical	No	None	0	No	No	No	2.7	1.3	3	0.5	0.2	44.7	1.8	0.7
Zica-20220112-195994	2022-01-16 20:10:43.053	Typical	No	None	0	No	No	No	3.3	1.2	4	0.5	0.2	41.1	1.8	0.3
Zica-20220112-195994	2022-01-16 23:27:19.053	Typical	No	None	0	No	No	No	3.9	1.4	6	0.5	0.3	51.4	1.8	0.7
Zica-20220112-195994	2022-01-17 03:18:28.053	Typical	No	None	0	No	No	No	3.3	1.3	5	0.5	0.2	45.6	1.8	0.9
Zica-20220112-195994	2022-01-17 06:35:23.053	Typical	No	None	0	No	No	No	2.5	1.2	3	0.5	0.1	42.7	1.8	0.9
Zica-20220112-195994	2022-01-17 09:06:09.053	Typical	No	None	0	No	No	No	3.9	1.2	6	0.5	0.4	37.0	1.8	0.4
Zica-20220112-195994	2022-01-17 13:02:07.053	Variant	No	None	0	No	No	Yes	8.1	1.3	10	1.6	0.3	40.4	1.8	0.8
Zica-20220112-195994	2022-01-17 21:09:42.053	Typical	No	None	0	No	No	No	3.4	1.3	4	0.6	0.2	40.3	1.8	1.4
Zica-20220112-195994	2022-01-18 00:34:35.053	Typical	No	None	0	No	No	No	2.0	1.2	2	0.3	0.1	45.7	1.8	1.8

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds			Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?					Present?	Present?				
Zica-20220112-195994	2022-01-18 02:33:16.053	Typical	No	None	0	No	No	No	2.2	1.0	3	0.4	0.1	32.0	1.8	0.3
Zica-20220112-195994	2022-01-18 04:46:27.053	Typical	No	None	0	No	No	No	2.0	1.0	2	0.4	0.1	36.9	1.8	1.2
Zica-20220112-195994	2022-01-18 06:45:52.053	Typical	No	None	0	No	No	No	1.9	1.1	2	0.4	0.1	35.4	1.8	1.0
Zica-20220112-195994	2022-01-18 08:41:00.053	Typical	No	None	0	No	No	No	5.1	1.2	7	0.8	0.3	33.0	1.8	1.7
Zica-20220112-195994	2022-01-18 13:48:52.053	Typical	No	None	0	No	No	No	2.7	1.3	3	0.5	0.1	39.2	1.8	0.6
Zica-20220112-195994	2022-01-18 16:33:08.053	Typical	No	None	0	No	No	No	2.6	1.3	3	0.5	0.1	38.9	1.8	2.3
Zica-20220112-195994	2022-01-18 19:10:52.053	Typical	No	None	0	No	No	No	3.8	1.3	5	0.5	0.2	35.8	1.1	1.1
Zica-20220112-195994	2022-01-18 22:59:37.053	Typical	No	None	0	No	No	No	3.6	1.4	5	0.5	0.2	40.8	1.7	0.5
Zica-20220112-195994	2022-01-19 02:37:23.053	Typical	No	None	0	No	No	No	2.9	1.2	4	0.4	0.3	42.2	1.7	1.6
Zica-20220112-195994	2022-01-19 05:28:34.053	Typical	No	None	0	No	No	No	2.6	1.1	2	0.6	0.3	35.7	1.8	0.2
Zica-20220112-195994	2022-01-19 08:07:15.053	Typical	No	None	0	No	No	No	2.9	1.2	4	0.5	0.2	40.0	1.8	1.2
Zica-20220112-195994	2022-01-19 11:02:01.053	Typical	No	None	0	No	No	No	NA	1.2	NA	NA	NA	39.6	1.7	NA
Zica-20230518-233391	2023-05-18 21:15:43.053	Typical	No	None	0	No	No	No	2.4	1.1	3	0.4	0.2	37.3	1.6	1.7
Zica-20230518-233391	2023-05-18 23:37:42.053	Typical	No	None	0	No	No	No	2.4	1.0	3	0.4	0.2	34.9	1.6	0.9
Zica-20230518-233391	2023-05-19 02:00:05.053	Typical	No	None	0	No	Yes	No	2.1	1.1	3	0.3	0.2	33.9	1.6	1.4
Zica-20230518-233391	2023-05-19 04:04:22.053	Variant	No	None	0	No	Yes	No	1.7	0.9	2	0.3	0.2	36.0	1.6	1.1
Zica-20230518-233391	2023-05-19 05:44:09.053	Variant	No	None	0	No	Yes	No	1.7	0.9	1	0.3	0.2	32.3	1.6	1.4
Zica-20230518-233391	2023-05-19 07:26:29.053	Variant	No	None	0	No	No	No	2.2	0.9	4	0.3	0.2	35.7	1.4	0.9
Zica-20230518-233391	2023-05-19 09:38:13.053	Variant	No	None	0	No	No	No	1.5	0.8	1	0.2	0.2	31.2	1.2	0.7
Zica-20230518-233391	2023-05-19 11:09:41.053	Variant	No	None	0	No	No	No	7.4	1.0	12	0.9	0.4	38.2	1.1	1.2
Zica-20230518-233391	2023-05-19 18:34:43.053	Typical	No	None	0	No	No	No	2.5	0.9	3	0.5	0.2	18.9	1.0	0.2
Zica-20230518-233391	2023-05-19 21:04:02.053	Typical	No	None	0	No	No	No	3.4	1.2	4	0.6	0.2	45.8	1.0	1.1
Zica-20230518-233391	2023-05-20 00:26:24.053	Typical	No	None	0	No	Yes	No	3.5	1.1	5	0.5	0.2	43.9	1.3	1.2
Zica-20230518-233391	2023-05-20 03:58:23.053	Typical	No	None	0	No	Yes	No	2.3	1.2	3	0.4	0.2	45.8	1.3	1.3

Whale ID	Start Time (UTC)	State	Sonar before EOE?	MFAS RL	MFAS cSEL	Echosounder Present?	Impulsive Sounds Present?	Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)	
Zica-20230518-233391	2023-05-20 06:14:06.053	Typical	No	None	0	No	Yes	No	1.9	1.2	2	0.4	0.2	39.3	1.1	0.3
Zica-20230518-233391	2023-05-20 08:08:16.053	Typical	No	None	0	No	No	No	2.7	1.1	3	0.4	0.2	40.6	1.2	1.0
Zica-20230518-233391	2023-05-20 10:50:28.053	Typical	No	None	0	No	No	No	3.8	1.1	6	0.5	0.2	35.1	1.1	0.1
Zica-20230518-233391	2023-05-20 14:40:17.053	Typical	No	None	0	No	No	No	2.9	1.5	3	0.5	0.2	49.7	1.0	0.6
Zica-20230518-233391	2023-05-20 17:36:56.053	Typical	No	None	0	No	No	No	2.3	1.4	2	0.4	0.1	41.5	0.9	1.2
Zica-20230518-233391	2023-05-20 19:57:04.053	Typical	No	None	0	No	No	No	3.7	1.2	5	0.5	0.2	44.1	1.1	1.2
Zica-20230518-233391	2023-05-20 23:37:26.053	Variant	No	None	0	No	Yes	No	7.0	1.5	12	0.7	0.5	42.5	1.5	2.4
Zica-20230518-233391	2023-05-21 06:36:06.053	Variant	No	None	0	No	No	No	1.6	1.1	1	0.2	0.1	28.0	1.8	3.4
Zica-20230518-233391	2023-05-21 08:11:45.053	Variant	No	None	0	No	No	No	1.7	1.0	1	0.2	0.2	38.1	1.1	3.6
Zica-20230518-233391	2023-05-21 09:52:08.053	Variant	No	None	0	No	No	No	2.3	1.1	3	0.2	0.3	31.7	1.3	3.4
Zica-20230518-233391	2023-05-21 12:09:40.053	Typical	No	None	0	No	No	No	3.8	1.1	6	0.5	0.2	39.5	1.2	0.0
Zica-20230518-233391	2023-05-21 15:54:56.053	Variant	No	None	0	No	No	No	6.1	1.1	10	0.7	0.3	33.7	1.1	2.0
Zica-20230518-233391	2023-05-21 21:58:11.053	Variant	No	None	0	No	No	No	1.7	1.1	2	0.3	0.1	29.0	1.7	0.7
Zica-20230518-233391	2023-05-21 23:37:24.053	Typical	No	None	0	No	No	No	3.4	1.1	4	0.6	0.3	35.8	1.6	2.1
Zica-20230518-233391	2023-05-22 02:58:40.053	Variant	No	None	0	No	No	No	2.8	0.7	6	0.5	0.4	23.0	1.8	0.6
Zica-20230518-233391	2023-05-22 05:44:22.053	Typical	No	None	0	No	No	No	2.5	1.3	3	0.3	0.2	46.1	1.8	1.4
Zica-20230518-233391	2023-05-22 08:12:52.053	Typical	No	None	0	No	No	No	5.4	1.2	8	0.6	0.3	33.3	1.8	1.0
Zica-20230518-233391	2023-05-22 13:39:03.053	Typical	No	None	0	No	No	No	3.1	1.1	5	0.4	0.2	32.4	1.7	1.0
Zica-20230518-233391	2023-05-22 16:45:29.053	Typical	No	None	0	No	No	No	3.0	1.1	4	0.5	0.2	31.6	1.7	1.6
Zica-20230518-233391	2023-05-22 19:45:07.053	Variant	No	None	0	No	No	No	5.0	1.3	8	0.6	0.3	36.5	1.8	3.1
Zica-20230518-233391	2023-05-23 00:43:40.053	Variant	No	None	0	No	No	No	1.7	1.2	2	0.3	0.1	37.1	1.1	2.6
Zica-20230518-233391	2023-05-23 02:24:22.053	Variant	No	None	0	No	Yes	No	1.5	0.9	3	0.2	0.1	26.7	1.1	2.5
Zica-20230518-233391	2023-05-23 03:52:29.053	Variant	No	None	0	No	No	No	1.9	0.9	2	0.3	0.2	32.6	1.3	0.5
Zica-20230518-233391	2023-05-23 05:46:35.053	Variant	No	None	0	No	No	No	1.4	0.9	2	0.2	0.1	32.9	1.2	2.6

Whale ID	Start Time (UTC)	State	Sonar before EOE?	MFAS RL	MFAS cSEL	Echosounder Present?	Impulsive Sounds Present?	Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)	Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
Zica-20230518-233391	2023-05-23 07:11:12.053	Variant	No	None	0	No	Yes	No	1.9	1.0	3	0.3	0.1	31.3	1.1	0.4
Zica-20230518-233391	2023-05-23 09:05:11.053	Typical	No	None	0	No	No	No	2.5	1.0	4	0.4	0.2	20.6	1.1	1.8
Zica-20230518-233391	2023-05-23 11:35:49.053	Typical	No	None	0	No	No	No	4.3	1.0	8	0.6	0.2	28.8	1.3	1.4
Zica-20230518-233391	2023-05-23 15:51:54.053	Typical	No	None	0	No	No	No	2.6	1.1	4	0.4	0.1	38.2	1.1	0.8
Zica-20230518-233391	2023-05-23 18:25:50.053	Typical	No	None	0	No	No	No	3.7	1.4	6	0.4	0.2	56.3	1.1	1.1
Zica-20230518-233391	2023-05-23 22:08:45.053	Typical	No	None	0	No	No	No	2.9	1.2	4	0.5	0.2	26.6	1.0	1.9
Zica-20230518-233391	2023-05-24 01:02:36.053	Typical	No	104.4	112.2	No	Yes	No	2.3	1.0	3	0.4	0.2	28.2	0.9	1.2
Zica-20230518-233391	2023-05-24 03:22:02.053	Variant	Yes	120.9	126.7	No	Yes	No	1.6	1.1	1	0.5	0.1	4.7	0.9	2.3
Zica-20230518-233391	2023-05-24 04:57:39.053	Variant	Yes	120.7	129.4	No	Yes	No	1.7	1.0	2	0.3	0.1	25.8	1.1	1.4
Zica-20230518-233391	2023-05-24 06:42:08.053	Variant	No	None	0	No	Yes	No	1.3	0.9	0	NA	0.4	29.6	1.0	2.6
Zica-20230518-233391	2023-05-24 08:02:51.053	Variant	No	None	0	No	Yes	No	2.3	1.5	1	0.4	0.4	42.0	1.2	2.3
Zica-20230518-233391	2023-05-24 10:20:38.053	Variant	No	None	0	No	No	No	6.3	1.0	11	0.6	0.4	35.7	1.1	0.6
Zica-20230518-233391	2023-05-24 16:36:17.053	Variant	No	None	0	No	No	No	5.2	1.0	8	0.7	0.4	28.6	1.0	1.6
Zica-20230518-233391	2023-05-24 21:48:27.053	Typical	No	None	0	No	No	No	2.9	1.5	4	0.3	0.2	43.8	1.0	2.6
Zica-20230518-233391	2023-05-25 00:41:53.053	Typical	No	None	0	No	No	No	2.4	1.3	3	0.3	0.1	46.6	1.4	0.7
Zica-20230518-233391	2023-05-25 03:03:32.053	Variant	No	None	0	No	Yes	No	2.6	1.5	3	0.4	0.1	8.0	1.3	1.8
Zica-20230518-233391	2023-05-25 05:40:10.053	Variant	No	None	0	No	No	No	2.1	1.2	2	0.2	0.5	36.2	1.4	1.5
Zica-20230518-233391	2023-05-25 07:45:33.053	Variant	No	None	0	No	No	No	2.6	1.4	2	0.3	0.2	41.0	1.6	2.2
Zica-20230518-233391	2023-05-25 10:23:54.053	Variant	No	None	0	No	No	No	6.9	1.1	12	0.8	0.4	37.0	1.6	2.6
Zica-20230518-233391	2023-05-25 17:17:21.053	Variant	No	None	0	No	No	No	2.1	1.1	2	0.5	0.1	30.8	1.1	1.0
Zica-20230518-233391	2023-05-25 19:21:43.053	Variant	No	None	0	No	Yes	No	9.7	1.3	15	0.8	0.5	37.8	1.5	0.6
Zica-20230518-233391	2023-05-26 05:01:28.053	Variant	No	None	0	No	No	No	3.0	1.0	5	0.4	0.2	16.0	1.5	2.7
Zica-20230518-233391	2023-05-26 08:02:44.053	Variant	No	None	0	No	No	No	2.2	1.2	3	0.3	0.1	27.2	1.1	2.7
Zica-20230518-233391	2023-05-26 10:16:09.053	Variant	No	None	0	No	No	No	2.9	1.2	5	0.5	0.2	35.5	1.6	3.4

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds			Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?					Present?	Present?				
Zica-20230518-233391	2023-05-26 13:09:22.053	Typical	No	None	0	No	No	No	2.3	1.2	3	0.4	0.1	37.9	1.1	3.0
Zica-20230518-233391	2023-05-26 15:30:14.053	Typical	No	None	0	No	No	No	2.5	1.2	4	0.4	0.1	45.4	1.2	1.7
Zica-20230518-233391	2023-05-26 18:02:56.053	Typical	No	None	0	No	No	No	2.4	1.4	3	0.3	0.1	38.0	1.6	2.4
Zica-20230518-233391	2023-05-26 20:25:59.053	Typical	No	None	0	No	No	No	2.7	1.2	4	0.5	0.2	41.6	1.5	1.8
Zica-20230518-233391	2023-05-26 23:09:59.053	Variant	No	None	0	No	No	No	1.7	1.2	2	0.3	0.1	37.1	1.6	2.4
Zica-20230518-233391	2023-05-27 00:51:18.053	Typical	No	None	0	No	No	No	2.7	1.2	4	0.5	0.2	37.2	1.7	1.3
Zica-20230518-233391	2023-05-27 03:34:56.053	Variant	No	None	0	No	No	No	2.1	1.2	2	0.3	0.1	40.8	1.5	2.9
Zica-20230518-233391	2023-05-27 05:39:21.053	Variant	No	None	0	No	No	No	1.8	1.0	3	0.3	0.1	35.7	1.3	2.4
Zica-20230518-233391	2023-05-27 07:24:27.053	Variant	No	None	0	No	No	No	1.7	0.9	3	0.3	0.1	28.6	1.2	1.3
Zica-20230518-233391	2023-05-27 09:07:32.053	Variant	No	None	0	No	No	No	2.2	1.1	3	0.4	0.2	38.2	1.1	1.1
Zica-20230518-233391	2023-05-27 11:21:41.053	Variant	No	None	0	No	No	No	8.0	1.1	13	0.6	0.8	35.4	1.0	1.7
Zica-20230518-233391	2023-05-27 19:21:33.053	Variant	No	None	0	No	No	No	5.2	1.2	7	0.7	0.3	39.3	1.1	2.2
Zica-20230518-233391	2023-05-28 00:32:59.053	Variant	No	None	0	No	No	No	1.8	1.1	2	0.3	0.2	34.3	1.1	1.1
Zica-20230518-233391	2023-05-28 02:18:33.053	Variant	No	None	0	No	Yes	No	2.1	1.1	2	0.3	0.7	39.2	1.2	1.9
Zica-20230518-233391	2023-05-28 04:26:03.053	Variant	No	None	0	No	No	No	2.1	1.1	1	0.2	0.6	40.9	1.3	3.2
Zica-20230518-233391	2023-05-28 06:30:56.053	Typical	No	None	0	No	No	No	2.6	1.3	0	NA	0.3	39.8	1.6	1.9
Zica-20230518-233391	2023-05-28 09:06:35.053	Typical	No	None	0	No	Yes	No	2.4	1.1	1	0.3	0.3	35.7	1.6	1.8
Zica-20230518-233391	2023-05-28 11:29:08.053	Typical	No	None	0	No	No	No	3.2	1.3	6	0.4	0.2	39.0	1.6	0.6
Zica-20230518-233391	2023-05-28 14:42:46.053	Typical	No	None	0	No	No	No	3.5	1.4	5	0.5	0.2	36.5	1.6	1.2
Zica-20230518-233391	2023-05-28 18:12:41.053	Typical	No	None	0	No	Yes	No	3.9	1.5	5	0.6	0.2	39.5	1.6	0.6
Zica-20230518-233391	2023-05-28 22:06:39.053	Variant	No	None	0	No	Yes	No	6.2	1.3	10	0.6	0.3	34.9	1.6	1.1
Zica-20230518-233391	2023-05-29 04:19:43.053	Variant	No	None	0	No	No	No	1.6	1.3	1	0.3	0.1	45.2	1.5	3.5
Zica-20230518-233391	2023-05-29 05:57:31.053	Typical	No	None	0	No	No	No	3.2	1.1	5	0.6	0.2	25.1	1.6	1.1
Zica-20230518-233391	2023-05-29 09:11:45.053	Typical	No	None	0	No	No	No	NA	1.5	NA	NA	NA	35.0	1.8	NA

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds			Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?					Present?	Present?				
Zica-20230519-232950	2023-05-20 00:37:59.052	Typical	No	None	0	No	No	1.9	1.1	2	0.3	0.1	40.6	1.6	0.5	
Zica-20230519-232950	2023-05-20 02:30:28.052	Typical	No	None	0	No	Yes	No	1.9	1.0	3	0.3	0.2	39.5	1.6	1.0
Zica-20230519-232950	2023-05-20 04:25:51.052	Typical	No	None	0	No	Yes	No	2.5	0.9	4	0.4	0.3	37.0	1.6	1.6
Zica-20230519-232950	2023-05-20 06:52:53.052	Typical	No	None	0	No	Yes	No	2.7	1.0	4	0.4	0.2	46.4	1.6	0.4
Zica-20230519-232950	2023-05-20 09:33:59.052	Variant	No	None	0	No	No	No	6.2	1.2	12	0.6	0.4	44.1	1.6	1.6
Zica-20230519-232950	2023-05-20 15:48:54.052	Typical	No	None	0	No	No	No	2.9	1.6	3	0.5	0.1	42.3	1.6	1.2
Zica-20230519-232950	2023-05-20 18:42:08.052	Typical	No	None	0	No	No	No	2.4	1.3	3	0.4	0.1	35.2	1.7	1.9
Zica-20230519-232950	2023-05-20 21:06:59.052	Typical	No	None	0	No	No	No	3.1	1.4	5	0.4	0.2	36.6	1.7	2.0
Zica-20230519-232950	2023-05-21 00:13:34.052	Typical	No	None	0	No	Yes	No	4.7	1.4	8	0.5	0.2	30.2	1.7	1.5
Zica-20230519-232950	2023-05-21 04:53:13.052	Typical	No	None	0	No	No	No	2.2	1.3	2	0.5	0.1	34.6	1.5	2.1
Zica-20230519-232950	2023-05-21 07:07:32.052	Typical	No	None	0	No	No	No	2.3	1.2	3	0.3	0.2	26.6	1.1	1.2
Zica-20230519-232950	2023-05-21 09:25:42.052	Variant	No	None	0	No	Yes	No	2.1	1.0	3	0.3	0.2	22.6	1.1	2.7
Zica-20230519-232950	2023-05-21 11:32:39.052	Typical	No	None	0	No	No	No	3.1	1.2	5	0.4	0.2	22.5	1.1	1.5
Zica-20230519-232950	2023-05-21 14:39:09.052	Typical	No	None	0	No	No	No	2.7	1.1	4	0.4	0.2	30.4	1.1	1.1
Zica-20230519-232950	2023-05-21 17:19:05.052	Typical	No	None	0	No	No	No	4.5	1.8	7	0.4	0.3	61.9	1.1	0.5
Zica-20230519-232950	2023-05-21 21:46:17.052	Typical	No	None	0	No	Yes	No	2.9	1.2	5	0.3	0.2	34.0	1.1	2.1
Zica-20230519-232950	2023-05-22 00:39:26.052	Variant	No	None	0	No	No	No	2.2	1.1	3	0.3	0.2	30.2	1.2	3.0
Zica-20230519-232950	2023-05-22 02:48:48.052	Variant	No	None	0	No	Yes	No	2.0	1.0	1	0.4	0.5	27.0	1.8	1.7
Zica-20230519-232950	2023-05-22 04:46:08.052	Variant	No	None	0	No	No	No	1.6	1.0	1	0.1	0.3	37.2	1.1	1.8
Zica-20230519-232950	2023-05-22 06:24:23.052	Variant	No	None	0	No	No	No	2.0	1.0	2	0.4	0.3	32.9	1.2	3.1
Zica-20230519-232950	2023-05-22 08:26:35.052	Variant	No	None	0	No	Yes	No	2.0	0.9	3	0.3	0.2	35.7	1.2	1.8
Zica-20230519-232950	2023-05-22 10:29:26.052	Variant	No	None	0	No	No	No	1.5	0.9	2	0.3	0.2	32.1	1.2	1.3
Zica-20230519-232950	2023-05-22 11:57:04.052	Typical	No	None	0	No	No	No	3.2	1.1	5	0.4	0.2	30.9	1.1	1.7
Zica-20230519-232950	2023-05-22 15:06:14.052	Typical	No	None	0	No	No	No	2.2	1.1	3	0.4	0.2	38.1	1.1	0.7

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds				Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?	Present?										
Zica-20230519-232950	2023-05-22 17:21:10.052	Typical	No	None	0	No	No	No	1.8	1.0	2	0.4	0.1	39.1	1.1	1.5	
Zica-20230519-232950	2023-05-22 19:07:46.052	Typical	No	None	0	No	No	No	4.4	1.1	7	0.6	0.3	26.8	1.1	2.1	
Zica-20230519-232950	2023-05-22 23:34:18.052	Typical	No	None	0	No	No	No	2.4	1.3	3	0.4	0.1	33.7	1.5	2.4	
Zica-20230519-232950	2023-05-23 02:00:10.052	Typical	No	None	0	No	Yes	No	3.4	1.4	6	0.4	0.2	31.4	1.7	2.3	
Zica-20230519-232950	2023-05-23 05:22:57.052	Typical	No	None	0	No	No	No	2.6	1.2	4	0.3	0.2	34.7	1.7	0.4	
Zica-20230519-232950	2023-05-23 07:59:25.052	Typical	No	None	0	No	No	No	2.5	1.4	3	0.3	0.2	38.1	1.7	0.4	
Zica-20230519-232950	2023-05-23 10:31:22.052	Typical	No	None	0	No	No	No	3.9	1.2	6	0.6	0.2	39.1	1.7	1.3	
Zica-20230519-232950	2023-05-23 14:27:41.052	Typical	No	93.4	105.5	Yes	No	No	3.3	1.2	5	0.6	0.2	26.9	1.6	1.9	
Zica-20230519-232950	2023-05-23 17:43:16.052	Variant	No	None	0	Yes	No	No	3.7	1.0	9	0.4	0.3	25.3	1.6	4.1	
Zica-20230519-232950	2023-05-23 21:28:13.052	Variant	No	None	0	No	No	No	1.8	1.2	2	0.2	0.1	36.6	1.3	2.1	
Zica-20230519-232950	2023-05-23 23:17:16.052	Typical	No	None	0	Yes	No	No	2.7	1.1	4	0.4	0.2	31.5	1.1	1.2	
Zica-20230519-232950	2023-05-24 01:57:07.052	Variant	No	151.1	160.3	Yes	Yes	No	7.9	2.8	9	1.4	0.6	27.7	1.5	1.2	
Zica-20230519-232950	2023-05-24 09:54:01.052	Variant	No	None	0	No	No	No	2.2	0.9	1	0.3	0.4	12.6	1.2	2.0	
Zica-20230519-232950	2023-05-24 12:08:56.052	Typical	No	None	0	No	Yes	No	3.0	1.2	4	0.4	0.3	28.5	1.1	1.1	
Zica-20230519-232950	2023-05-24 15:09:39.052	Typical	No	None	0	No	Yes	No	4.5	1.4	7	0.5	0.3	36.4	1.0	1.8	
Zica-20230519-232950	2023-05-24 19:37:31.052	Typical	No	None	0	No	No	No	3.6	1.5	6	0.4	0.2	31.1	1.4	1.8	
Zica-20230519-232950	2023-05-24 23:14:07.052	Typical	No	None	0	No	No	No	3.7	1.5	5	0.5	0.2	34.3	1.4	0.9	
Zica-20230519-232950	2023-05-25 02:58:47.052	Typical	No	None	0	No	Yes	No	3.6	1.3	5	0.7	0.2	27.9	1.4	2.1	
Zica-20230519-232950	2023-05-25 06:34:51.052	Typical	No	None	0	No	No	No	3.5	1.5	5	0.5	0.2	33.0	1.4	0.3	
Zica-20230519-232950	2023-05-25 10:03:05.052	Typical	No	None	0	No	No	No	2.3	1.2	3	0.4	0.1	31.9	1.4	1.4	
Zica-20230519-232950	2023-05-25 12:23:41.052	Typical	No	None	0	No	No	No	2.2	1.1	3	0.4	0.1	25.3	1.4	2.0	
Zica-20230519-232950	2023-05-25 14:36:01.052	Typical	No	None	0	No	No	No	3.2	1.3	5	0.4	0.2	38.6	1.4	0.6	
Zica-20230519-232950	2023-05-25 17:50:11.052	Typical	No	None	0	No	No	No	3.2	1.3	5	0.4	0.2	35.4	1.4	0.7	
Zica-20230519-232950	2023-05-25 21:04:11.052	Typical	No	None	0	No	No	No	3.0	1.3	4	0.5	0.2	41.1	1.5	1.7	

Whale ID	Start Time (UTC)	State	Sonar before EOE?					Impulsive Sounds Present?	Orca Sounds Present?	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?	Duration (hours)					Duration (hours)	Duration (hours)				
Zica-20230519-232950	2023-05-26 00:02:08.052	Typical	No	None	0	No	No	No	4.7	1.3	8	0.5	0.3	36.1	1.4	2.7	
Zica-20230519-232950	2023-05-26 04:44:21.052	Typical	No	None	0	No	No	No	2.5	1.2	2	0.4	0.3	15.0	1.0	2.3	
Zica-20230519-232950	2023-05-26 07:12:40.052	Variant	No	None	0	No	No	No	1.4	1.1	1	0.2	0.1	28.2	1.0	2.9	
Zica-20230519-232950	2023-05-26 08:34:53.052	Variant	No	None	0	Yes	No	No	5.5	1.1	12	0.5	0.5	25.2	1.1	1.8	
Zica-20230519-232950	2023-05-26 14:04:58.052	Variant	No	None	0	No	No	No	3.7	1.1	6	0.5	0.2	26.0	1.0	3.0	
Zica-20230519-232950	2023-05-26 17:46:30.052	Typical	No	None	0	No	No	No	3.9	1.1	6	0.5	0.3	26.4	1.1	2.3	
Zica-20230519-232950	2023-05-26 21:42:38.052	Typical	No	None	0	No	No	No	2.8	1.3	4	0.4	0.1	37.5	0.9	2.5	
Zica-20230519-232950	2023-05-27 00:28:38.052	Typical	No	None	0	No	No	No	4.6	1.8	8	0.4	0.2	39.3	1.1	1.8	
Zica-20230519-232950	2023-05-27 05:06:03.052	Typical	No	None	0	No	No	No	3.1	1.5	4	0.3	0.2	35.8	1.5	1.8	
Zica-20230519-232950	2023-05-27 08:10:54.052	Typical	No	None	0	No	Yes	No	2.8	1.4	4	0.4	0.3	49.7	1.5	2.7	
Zica-20230519-232950	2023-05-27 11:01:21.052	Typical	No	None	0	No	No	No	3.3	1.4	5	0.4	0.2	42.3	1.6	1.8	
Zica-20230519-232950	2023-05-27 14:22:16.052	Typical	No	None	0	No	No	No	4.0	1.4	6	0.5	0.2	40.7	1.6	0.4	
Zica-20230519-232950	2023-05-27 18:19:41.052	Typical	No	None	0	No	Yes	No	2.9	1.4	4	0.4	0.2	41.8	1.5	2.0	
Zica-20230519-232950	2023-05-27 21:14:40.052	Typical	No	None	0	No	No	No	2.9	1.3	4	0.4	0.2	38.9	1.6	1.6	
Zica-20230519-232950	2023-05-28 00:06:06.052	Typical	No	None	0	No	Yes	No	2.7	1.3	4	0.3	0.2	35.8	1.3	3.7	
Zica-20230519-232950	2023-05-28 02:50:00.052	Typical	No	None	0	No	Yes	No	2.2	1.0	4	0.3	0.2	36.1	1.5	2.1	
Zica-20230519-232950	2023-05-28 05:04:51.052	Typical	No	None	0	No	No	No	2.5	1.1	5	0.3	0.2	35.3	1.6	2.0	
Zica-20230519-232950	2023-05-28 07:34:21.052	Variant	No	None	0	No	No	No	5.0	1.1	7	0.5	0.8	31.8	1.3	2.4	
Zica-20230519-232950	2023-05-28 12:32:11.052	Typical	No	None	0	No	No	No	4.5	1.1	9	0.5	0.2	25.5	1.7	0.6	
Zica-20230519-232950	2023-05-28 17:03:23.052	Typical	No	None	0	No	No	No	2.9	1.0	5	0.4	0.2	11.8	1.6	1.5	
Zica-20230519-232950	2023-05-28 19:58:13.052	Typical	No	None	0	No	No	No	2.8	1.1	5	0.3	0.2	36.3	1.7	3.2	
Zica-20230519-232950	2023-05-28 22:47:39.052	Typical	No	None	0	No	No	No	3.8	1.1	7	0.5	0.2	26.4	1.2	1.8	
Zica-20230519-232950	2023-05-29 02:37:06.052	Typical	No	None	0	No	No	No	2.4	1.0	4	0.4	0.2	32.0	1.0	1.5	
Zica-20230519-232950	2023-05-29 05:01:01.052	Variant	No	None	0	No	No	No	2.0	1.0	3	0.3	0.2	33.4	1.0	1.5	

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds				Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?	Present?										
Zica-20230519-232950	2023-05-29 07:01:29.052	Variant	No	None	0	No	No	No	2.6	0.9	5	0.4	0.3	29.3	0.9	2.1	
Zica-20230519-232950	2023-05-29 09:38:12.052	Variant	No	None	0	No	No	No	2.1	1.0	4	0.3	0.2	31.3	0.9	2.7	
Zica-20230519-232950	2023-05-29 11:46:44.052	Variant	No	None	0	No	No	No	3.3	1.2	6	0.4	0.2	27.1	1.1	3.4	
Zica-20230519-232950	2023-05-29 15:04:10.052	Typical	No	None	0	No	No	No	2.1	1.1	3	0.3	0.1	28.6	0.9	0.1	
Zica-20230519-232950	2023-05-29 17:10:26.052	Typical	No	None	0	No	No	No	2.2	1.1	3	0.4	0.1	29.7	0.9	2.2	
Zica-20230519-232950	2023-05-29 19:25:01.052	Typical	No	None	0	No	No	No	3.1	1.3	5	0.4	0.2	37.9	1.1	0.5	
Zica-20230519-232950	2023-05-29 22:31:14.052	Typical	No	None	0	No	No	No	3.0	1.1	5	0.4	0.2	32.7	1.1	0.5	
Zica-20230519-232950	2023-05-30 01:34:08.052	Typical	No	None	0	No	No	No	NA	1.3	NA	NA	NA	33.9	1.1	NA	
Zica-20230723-233394	2023-07-23 20:46:59.052	Typical	Yes	123.8	135.2	No	No	No	2.7	1.2	3	0.5	0.2	32.2	1.6	2.6	
Zica-20230723-233394	2023-07-23 23:26:19.052	Typical	No	None	0	No	No	No	4.1	1.7	6	0.5	0.3	42.2	1.6	0.4	
Zica-20230723-233394	2023-07-24 03:34:14.052	Variant	Yes	121.5	126.3	No	Yes	No	1.8	1.5	1	0.2	0.1	32.3	1.6	1.9	
Zica-20230723-233394	2023-07-24 05:22:59.052	Typical	No	None	0	No	Yes	No	2.5	1.1	3	0.5	0.2	31.5	1.2	1.0	
Zica-20230723-233394	2023-07-24 07:53:01.052	Variant	No	None	0	No	No	No	1.3	1.1	1	0.1	0.1	36.1	1.2	2.0	
Zica-20230723-233394	2023-07-24 09:10:45.052	Variant	No	None	0	No	No	No	2.2	0.9	1	0.6	0.2	29.4	1.2	1.1	
Zica-20230723-233394	2023-07-24 11:25:24.052	Variant	No	None	0	No	No	No	4.3	0.9	10	0.5	0.4	25.3	1.0	0.1	
Zica-20230723-233394	2023-07-24 15:43:01.052	Variant	No	None	0	No	No	No	4.7	1.2	9	0.5	0.4	25.9	1.1	0.3	
Zica-20230723-233394	2023-07-24 20:27:19.052	Typical	No	None	0	No	No	No	3.1	1.1	5	0.4	0.2	22.9	1.0	1.3	
Zica-20230723-233394	2023-07-24 23:34:28.052	Typical	No	88.5	91.5	No	No	No	3.6	1.1	6	0.4	0.2	27.6	1.0	0.6	
Zica-20230723-233394	2023-07-25 03:07:29.052	Typical	Yes	121.2	121.8	No	Yes	No	2.5	1.1	4	0.3	0.2	35.1	1.2	0.3	
Zica-20230723-233394	2023-07-25 05:36:03.052	Typical	No	None	0	No	Yes	No	3.2	1.1	6	0.4	0.3	37.8	1.1	0.6	
Zica-20230723-233394	2023-07-25 08:45:16.052	Typical	No	None	0	No	Yes	No	2.9	1.1	4	0.3	0.2	36.8	1.4	0.1	
Zica-20230723-233394	2023-07-25 11:37:13.052	Typical	No	None	0	No	No	No	3.7	1.2	6	0.4	0.2	33.5	1.2	0.7	
Zica-20230723-233394	2023-07-25 15:21:43.052	Typical	No	104.9	109.6	No	Yes	No	3.1	1.1	4	0.5	0.2	34.8	1.1	0.3	
Zica-20230723-233394	2023-07-25 18:26:05.052	Typical	Yes	122.5	132.9	No	Yes	No	4.4	1.2	7	0.5	0.3	35.0	1.0	0.6	

Whale ID	Start Time (UTC)	State	Sonar before EOE?	MFAS RL	MFAS cSEL	Echosounder Present?	Impulsive Sounds Present?	Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)	Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
Zica-20230723-233394	2023-07-25 22:47:23.052	Typical	Yes	120.9	120.7	No	No	No	4.1	1.2	7	0.5	0.2	33.1	1.0	1.1
Zica-20230723-233394	2023-07-26 02:52:09.052	Typical	No	None	0	No	Yes	No	2.4	1.2	3	0.4	0.2	40.1	0.9	2.2
Zica-20230723-233394	2023-07-26 05:16:34.052	Typical	No	None	0	No	No	No	2.9	1.1	5	0.5	0.2	35.8	1.2	0.9
Zica-20230723-233394	2023-07-26 08:13:22.052	Typical	No	None	0	No	No	No	NA	1.1	NA	NA	NA	38.6	1.1	NA
Zica-20230723-233395	2023-07-23 20:45:43.052	Typical	Yes	126.8	125.4	No	No	No	2.9	1.3	3	0.6	0.2	37.2	NA	1.4
Zica-20230723-233395	2023-07-23 23:41:51.052	Typical	No	None	0	No	No	No	3.3	1.3	4	0.5	0.2	33.8	NA	1.5
Zica-20230723-233395	2023-07-24 03:00:46.052	Typical	Yes	114.8	120.4	No	Yes	No	2.4	1.1	3	0.5	0.2	38.0	NA	2.0
Zica-20230723-233395	2023-07-24 05:23:13.052	Typical	No	None	0	No	Yes	No	3.0	1.2	3	0.7	0.2	38.2	NA	2.4
Zica-20230723-233395	2023-07-24 08:25:59.052	Typical	No	None	0	No	Yes	No	3.1	1.1	5	0.4	0.3	32.0	NA	0.5
Zica-20230723-233395	2023-07-24 11:32:31.052	Typical	No	None	0	Yes	No	No	3.7	1.0	5	0.5	0.2	36.6	NA	0.4
Zica-20230723-233395	2023-07-24 15:16:15.052	Typical	No	None	0	No	No	No	2.6	1.1	4	0.4	0.2	44.9	NA	1.8
Zica-20230723-233395	2023-07-24 17:51:45.052	Typical	No	None	0	No	No	No	1.8	0.9	2	0.4	0.1	31.1	NA	0.7
Zica-20230723-233395	2023-07-24 19:38:58.052	Typical	No	67	0	No	No	No	3.7	1.1	6	0.4	0.2	36.8	NA	0.4
Zica-20230723-233395	2023-07-24 23:19:25.052	Typical	Yes	67	0	No	Yes	No	4.6	1.6	7	0.4	0.3	53.5	NA	0.5
Zica-20230723-233395	2023-07-25 03:58:24.052	Variant	Yes	109.6	115.1	No	Yes	No	3.5	1.2	3	0.9	0.2	40.4	NA	0.7
Zica-20230723-233395	2023-07-25 07:25:46.052	Typical	No	None	0	No	Yes	No	2.3	1.4	2	0.3	0.2	39.5	NA	1.3
Zica-20230723-233395	2023-07-25 09:45:14.052	Typical	No	None	0	No	Yes	No	2.3	1.2	3	0.4	0.2	39.5	NA	1.4
Zica-20230723-233395	2023-07-25 12:04:35.052	Typical	No	None	0	No	Yes	No	3.5	1.4	4	0.5	0.2	41.5	NA	1.6
Zica-20230723-233395	2023-07-25 15:34:14.052	Typical	No	124.9	120.9	No	No	No	2.5	1.1	3	0.5	0.2	29.5	NA	0.6
Zica-20230723-233395	2023-07-25 18:05:29.052	Variant	Yes	106.1	112.6	No	Yes	No	0.7	0.6	0	NA	0.1	13.6	NA	3.4
Zica-20230723-233395	2023-07-25 18:47:33.052	Variant	Yes	119.4	129.5	No	Yes	No	1.2	1.2	0	NA	0.1	32.8	NA	2.1
Zica-20230723-233395	2023-07-25 20:00:45.052	Variant	Yes	None	0	No	No	No	NA	0.8	NA	NA	NA	27.7	NA	NA
Zica-20240227-233396	2024-02-28 03:58:45.052	Variant	No	137	144.4	No	No	No	4.7	1.4	5	0.8	0.4	41.9	1.6	1.7
Zica-20240227-233396	2024-02-28 08:40:32.052	Typical	No	None	0	No	No	No	3.9	1.1	7	0.4	0.3	39.6	1.3	2.1

Whale ID	Start Time (UTC)	State	Sonar before EOE?	MFAS RL	MFAS cSEL	Echosounder Present?	Impulsive Sounds Present?	Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)	
Zica-20240227-233396	2024-02-28 12:34:19.052	Typical	No	None	0	No	No	No	4.0	1.3	6	0.6	0.3	39.0	1.8	0.4
Zica-20240227-233396	2024-02-28 16:36:41.052	Typical	No	None	0	No	Yes	No	3.1	1.1	5	0.4	0.2	38.7	1.8	0.8
Zica-20240227-233396	2024-02-28 19:43:54.052	Typical	No	None	0	No	No	No	3.3	1.2	5	0.4	0.2	38.8	1.8	1.0
Zica-20240227-233396	2024-02-28 22:59:08.052	Typical	No	None	0	No	No	No	4.6	1.2	8	0.5	0.4	38.6	1.8	1.6
Zica-20240227-233396	2024-02-29 03:32:51.052	Typical	No	None	0	No	Yes	No	2.6	1.1	5	0.3	0.2	40.5	1.8	1.2
Zica-20240227-233396	2024-02-29 06:10:52.052	Variant	No	None	0	No	No	No	5.9	0.9	11	0.6	0.5	33.5	1.7	1.3
Zica-20240227-233396	2024-02-29 12:02:10.052	Typical	No	None	0	No	Yes	No	4.1	1.3	6	0.6	0.3	41.4	1.8	1.3
Zica-20240227-233396	2024-02-29 16:10:56.052	Typical	No	None	0	No	No	No	2.7	1.2	4	0.4	0.2	42.4	1.8	1.8
Zica-20240227-233396	2024-02-29 18:55:48.052	Typical	No	None	0	No	No	No	3.7	1.2	6	0.4	0.3	43.9	1.8	1.6
Zica-20240227-233396	2024-02-29 22:36:48.052	Typical	No	None	0	No	Yes	No	3.9	1.1	6	0.4	0.3	40.8	1.2	1.5
Zica-20240227-233396	2024-03-01 02:29:38.052	Typical	No	None	0	No	No	No	3.2	1.0	6	0.4	0.3	33.8	1.1	3.0
Zica-20240227-233396	2024-03-01 05:39:29.052	Typical	No	None	0	No	Yes	No	2.8	1.0	4	0.5	0.2	38.6	1.6	2.3
Zica-20240227-233396	2024-03-01 08:29:47.052	Typical	No	None	0	No	No	No	3.4	1.1	5	0.4	0.3	37.3	1.7	2.0
Zica-20240227-233396	2024-03-01 11:51:13.052	Typical	No	None	0	No	No	No	4.2	1.1	7	0.5	0.3	38.4	1.1	1.6
Zica-20240227-233396	2024-03-01 16:01:46.052	Typical	No	None	0	No	No	No	2.9	1.2	4	0.4	0.2	41.6	1.1	1.2
Zica-20240227-233396	2024-03-01 18:56:32.052	Typical	No	None	0	No	No	No	4.2	1.2	7	0.4	0.3	38.7	1.6	1.4
Zica-20240227-233396	2024-03-01 23:05:59.052	Typical	No	None	0	No	No	No	4.2	1.3	7	0.4	0.3	38.9	1.7	3.0
Zica-20240227-233396	2024-03-02 03:18:08.052	Typical	No	None	0	No	No	No	2.8	1.3	2	0.3	0.3	41.3	1.7	0.8
Zica-20240227-233396	2024-03-02 06:03:32.052	Variant	No	None	0	No	No	No	2.9	1.0	2	0.3	1.1	41.6	1.7	1.7
Zica-20240227-233396	2024-03-02 08:54:46.052	Typical	No	None	0	No	No	No	3.4	1.0	5	0.4	0.5	39.3	1.8	1.7
Zica-20240227-233396	2024-03-02 12:18:15.052	Typical	No	None	0	No	No	No	4.7	0.9	9	0.5	0.4	25.4	1.1	1.1
Zica-20240227-233396	2024-03-02 17:00:08.052	Typical	No	None	0	No	No	No	2.9	1.1	5	0.5	0.2	34.8	1.1	0.7
Zica-20240227-233396	2024-03-02 19:51:19.052	Typical	No	None	0	No	No	No	3.7	1.2	6	0.4	0.3	39.0	1.8	2.5
Zica-20240227-233396	2024-03-02 23:32:04.052	Typical	No	None	0	No	No	No	2.6	1.1	4	0.4	0.2	37.5	1.8	0.5

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds			Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?					Present?	Present?				
Zica-20240227-233396	2024-03-03 02:10:43.052	Typical	No	None	0	No	No	3.4	1.5	4	0.3	0.3	34.7	1.1	0.9	
Zica-20240227-233396	2024-03-03 05:32:14.052	Variant	No	None	0	No	No	2.5	1.0	1	0.4	0.7	38.0	1.7	1.9	
Zica-20240227-233396	2024-03-03 08:04:10.052	Variant	No	None	0	No	No	1.9	1.0	0	NA	0.8	33.3	1.6	3.5	
Zica-20240227-233396	2024-03-03 09:57:09.052	Variant	No	None	0	No	No	3.0	1.0	2	0.4	1.0	29.6	1.7	0.5	
Zica-20240227-233396	2024-03-03 12:58:13.052	Typical	No	None	0	No	No	3.3	1.0	5	0.4	0.3	32.7	1.7	1.7	
Zica-20240227-233396	2024-03-03 16:18:50.052	Typical	No	None	0	No	No	2.9	1.1	4	0.4	0.3	44.6	1.2	1.3	
Zica-20240227-233396	2024-03-03 19:11:13.052	Typical	No	None	0	No	No	3.2	1.2	5	0.4	0.3	42.9	1.0	2.7	
Zica-20240227-233396	2024-03-03 22:23:04.052	Typical	No	67	0	No	No	3.7	1.2	7	0.4	0.3	45.3	1.1	1.8	
Zica-20240227-233396	2024-03-04 02:04:37.052	Variant	No	None	0	No	No	2.1	0.9	1	0.4	0.7	34.1	1.4	1.7	
Zica-20240227-233396	2024-03-04 04:10:40.052	Variant	Yes	110.8	116.9	No	No	2.2	0.9	1	0.3	0.8	33.4	1.7	1.6	
Zica-20240227-233396	2024-03-04 06:24:27.052	Variant	No	None	0	No	No	2.0	1.0	1	0.3	0.3	35.3	1.7	2.1	
Zica-20240227-233396	2024-03-04 08:22:19.052	Variant	No	None	0	No	No	2.5	0.9	2	0.4	0.8	32.2	1.7	3.6	
Zica-20240227-233396	2024-03-04 10:53:02.052	Variant	No	None	0	No	Yes	No	2.4	1.0	3	0.3	0.4	35.2	1.7	3.3
Zica-20240227-233396	2024-03-04 13:19:25.052	Typical	No	None	0	No	No	No	3.1	0.9	5	0.5	0.3	21.7	1.1	2.6
Zica-20240227-233396	2024-03-04 16:28:10.052	Typical	No	None	0	No	No	No	3.0	1.2	5	0.4	0.2	41.5	1.1	1.6
Zica-20240227-233396	2024-03-04 19:25:24.052	Typical	No	None	0	No	No	No	3.2	1.1	5	0.4	0.3	39.5	1.1	1.0
Zica-20240227-233396	2024-03-04 22:38:00.052	Typical	No	None	0	No	No	No	3.8	1.2	6	0.4	0.3	46.7	1.1	0.7
Zica-20240227-233396	2024-03-05 02:24:28.052	Variant	No	None	0	No	No	No	2.3	1.3	1	0.2	0.6	42.6	1.5	2.7
Zica-20240227-233396	2024-03-05 04:42:11.052	Variant	No	None	0	No	No	No	2.0	0.9	1	0.3	0.6	27.4	1.1	1.5
Zica-20240227-233396	2024-03-05 06:42:20.052	Variant	No	None	0	No	No	No	2.6	1.0	1	0.5	0.5	30.7	1.0	1.6
Zica-20240227-233396	2024-03-05 09:15:57.052	Variant	No	None	0	No	No	No	3.6	0.8	5	0.4	0.6	28.7	1.0	2.2
Zica-20240227-233396	2024-03-05 12:51:24.052	Typical	No	None	0	Yes	Yes	No	4.4	1.2	6	0.6	0.3	28.0	1.6	1.1
Zica-20240227-233396	2024-03-05 17:14:39.052	Typical	No	119	112.8	No	No	No	5.1	1.3	7	0.6	0.4	42.3	1.0	1.1
Zica-20240227-233396	2024-03-05 22:20:46.052	Variant	Yes	148	155.8	No	No	No	6.6	1.0	10	0.9	0.6	3.8	0.9	2.1

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds				Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?	Present?										
Zica-20240227-233396	2024-03-06 04:56:40.052	Variant	No	150.3	151.5	Yes	No	No	5.3	0.8	7	0.8	0.5	20.0	0.7	0.1	
Zica-20240227-233396	2024-03-06 10:14:32.052	Variant	No	None	0	No	No	No	2.2	0.8	3	0.5	0.2	12.4	0.7	3.6	
Zica-20240227-233396	2024-03-06 12:28:43.052	Typical	No	None	0	No	No	No	4.6	1.2	6	0.6	0.3	27.9	1.1	2.7	
Zica-20240227-233396	2024-03-06 17:04:26.052	Typical	No	None	0	No	No	No	3.7	1.5	5	0.5	0.3	48.3	1.3	2.6	
Zica-20240227-233396	2024-03-06 20:46:40.052	Typical	No	None	0	No	No	No	2.5	1.0	4	0.4	0.2	31.7	1.1	2.2	
Zica-20240227-233396	2024-03-06 23:16:40.052	Typical	Yes	105.3	112.3	No	No	No	2.9	1.2	4	0.4	0.2	39.4	1.2	1.4	
Zica-20240227-233396	2024-03-07 02:08:41.052	Variant	No	None	0	No	No	No	2.2	0.9	2	0.3	0.8	35.1	1.3	0.7	
Zica-20240227-233396	2024-03-07 04:18:17.052	Typical	No	None	0	No	No	No	2.8	1.1	3	0.5	0.3	37.1	1.3	1.4	
Zica-20240227-233396	2024-03-07 07:06:11.052	Variant	No	None	0	No	No	No	2.6	0.9	2	0.3	1.0	37.5	1.5	5.0	
Zica-20240227-233396	2024-03-07 09:40:26.052	Variant	No	None	0	No	No	No	2.7	1.0	2	0.3	0.9	33.5	1.7	3.2	
Zica-20240227-233396	2024-03-07 12:20:10.052	Typical	No	None	0	No	No	No	3.4	1.0	6	0.4	0.3	33.6	1.0	1.9	
Zica-20240227-233396	2024-03-07 15:41:51.052	Typical	No	None	0	No	No	No	3.3	1.1	5	0.4	0.3	33.0	1.7	1.7	
Zica-20240227-233396	2024-03-07 18:57:59.052	Typical	No	None	0	No	No	No	4.0	1.2	9	0.3	0.4	37.2	1.7	0.5	
Zica-20240227-233396	2024-03-07 22:57:57.052	Typical	No	117.9	123.4	No	No	No	3.5	1.1	6	0.4	0.3	34.0	1.0	1.9	
Zica-20240227-233396	2024-03-08 02:29:58.052	Variant	No	None	0	No	No	No	2.8	1.0	3	0.3	0.6	31.7	1.7	1.0	
Zica-20240227-233396	2024-03-08 05:20:21.052	Variant	No	None	0	No	No	No	NA	0.7	NA	NA	NA	18.1	1.0	NA	
Zica-20240227-240128	2024-02-27 23:11:18.052	Typical	No	None	0	No	No	No	2.9	1.5	4	0.4	0.2	36.3	1.4	2.2	
Zica-20240227-240128	2024-02-28 02:05:33.052	Typical	No	None	0	No	No	No	2.4	1.3	3	0.4	0.1	35.7	1.5	1.9	
Zica-20240227-240128	2024-02-28 04:28:44.052	Typical	No	138.4	141.2	No	No	No	4.3	1.2	7	0.5	0.3	37.6	1.0	3.2	
Zica-20240227-240128	2024-02-28 08:47:14.052	Typical	No	None	0	No	No	No	3.7	1.0	6	0.5	0.2	26.9	0.9	2.4	
Zica-20240227-240128	2024-02-28 12:28:20.052	Typical	No	None	0	No	No	No	3.6	1.2	5	0.5	0.2	43.2	0.9	1.3	
Zica-20240227-240128	2024-02-28 16:01:33.052	Typical	No	None	0	No	No	No	4.0	1.1	6	0.5	0.2	34.6	1.0	1.0	
Zica-20240227-240128	2024-02-28 20:00:27.052	Typical	No	None	0	No	No	No	4.4	1.5	7	0.5	0.2	43.9	1.3	1.0	
Zica-20240227-240128	2024-02-29 00:23:31.052	Typical	No	None	0	No	No	No	3.6	1.5	6	0.4	0.2	41.1	1.2	0.4	

Whale ID	Start Time (UTC)	State	Sonar before EOE?	Impulsive Sounds			Orca Sounds Present?	Duration (hours)	Foraging Dive Duration (hours)	N Non-foraging Dives	Longest Non-foraging Dive (hours)		Surface Time (hours)	Echolocation Clicking Duration (minutes)	Maximum Dive Depth (km)	Distance Traveled (km)
				MFAS RL	MFAS cSEL	Echosounder Present?					Present?	Present?				
Zica-20240227-240128	2024-02-29 04:00:20.052	Typical	No	None	0	No	No	3.0	1.1	5	0.4	0.2	39.2	0.9	1.3	
Zica-20240227-240128	2024-02-29 06:58:59.052	Typical	No	None	0	No	No	3.2	1.2	6	0.4	0.2	39.7	1.2	1.0	
Zica-20240227-240128	2024-02-29 10:11:45.052	Typical	No	None	0	No	No	6.0	1.2	11	0.5	0.4	35.2	0.9	0.3	
Zica-20240227-240128	2024-02-29 16:11:55.052	Typical	No	None	0	No	No	3.9	1.5	5	0.5	0.2	43.6	1.1	0.9	
Zica-20240227-240128	2024-02-29 20:06:57.052	Typical	No	None	0	No	No	4.1	1.3	6	0.5	0.2	35.3	1.0	0.4	
Zica-20240227-240128	2024-03-01 00:15:25.052	Typical	No	None	0	No	No	3.0	1.5	3	0.5	0.2	44.4	1.0	0.9	
Zica-20240227-240128	2024-03-01 03:18:15.052	Typical	No	None	0	No	No	3.0	1.3	5	0.4	0.2	43.1	1.1	1.2	
Zica-20240227-240128	2024-03-01 06:21:11.052	Typical	No	None	0	No	No	4.4	1.3	8	0.4	0.3	41.1	1.0	0.6	
Zica-20240227-240128	2024-03-01 10:47:12.052	Typical	No	None	0	No	No	3.4	1.2	5	0.4	0.2	36.1	0.9	0.5	
Zica-20240227-240128	2024-03-01 14:12:14.052	Typical	No	None	0	No	No	3.5	1.5	4	0.5	0.2	40.5	1.0	1.3	
Zica-20240227-240128	2024-03-01 17:39:46.052	Typical	No	None	0	No	No	3.6	1.5	5	0.4	0.2	37.7	1.1	2.0	
Zica-20240227-240128	2024-03-01 21:12:54.052	Typical	No	None	0	No	No	3.5	1.3	5	0.4	0.2	35.6	0.9	0.5	
Zica-20240227-240128	2024-03-02 00:42:37.052	Typical	No	None	0	No	No	2.9	1.1	5	0.4	0.2	37.7	0.9	2.4	
Zica-20240227-240128	2024-03-02 03:39:15.052	Variant	No	None	0	No	No	1.2	0.6	2	0.3	0.1	13.7	0.8	3.2	
Zica-20240227-240128	2024-03-02 04:49:01.052	Typical	No	None	0	No	No	2.3	1.2	2	0.4	0.3	48.7	0.9	1.7	
Zica-20240227-240128	2024-03-02 07:05:07.052	Typical	No	None	0	No	No	2.1	1.2	3	0.3	0.3	46.3	1.1	2.4	
Zica-20240227-240128	2024-03-02 09:11:52.052	Typical	No	None	0	No	No	2.5	1.2	3	0.4	0.2	36.9	1.1	1.1	
Zica-20240227-240128	2024-03-02 11:41:18.052	Typical	No	None	0	No	No	3.4	1.1	6	0.4	0.3	37.0	1.2	1.3	
Zica-20240227-240128	2024-03-02 15:05:51.052	Typical	No	None	0	No	No	3.2	1.3	4	0.5	0.2	42.0	1.1	1.3	
Zica-20240227-240128	2024-03-02 18:17:34.052	Variant	No	None	0	No	No	NA	1.0	NA	NA	NA	24.7	0.8	NA	

## MFAS exposure details

Table S 2: MFAS exposure data summarised by SMRT tag deployment. Note that dive cycles where acoustic audits indicated MFAS presence, but for which SNR was too low to report any measures RMS or cSEL values, are not included in this table.

Whale ID	Dives	MFAS			MFAS			MFAS			MFAS		
	with MFAS	MFAS RMS (Min.)	MFAS RMS (Max.)	RMS (Median)	MFAS RMS (IQR)	MFAS RMS (Mean)	RMS (SD)	cSEL (Min.)	cSEL (Max.)	cSEL (Median)	MFAS cSEL (IQR)	MFAS cSEL (Mean)	MFAS cSEL (SD)
Zica-20191012-144029	2	106.4	136.5	121.4	15.0	121.4	21.3	117.2	145.9	131.6	14.4	131.6	20.3
Zica-20191012-145101	5	95.1	147.9	136.0	32.7	125.3	22.8	102.6	148.8	138.8	22.9	131.5	19.1
Zica-20191111-94810	4	97.5	141.2	111.7	23.3	115.5	19.6	108.0	137.2	118.1	18.6	120.3	13.7
Zica-20211112-94819	8	81.8	140.3	111.9	34.0	108.9	20.9	80.9	136.1	112.1	31.9	107.3	19.9
Zica-20211113-195993	2	107.9	118.2	113.1	5.1	113.1	7.3	115.6	125.7	120.7	5.1	120.7	7.1
Zica-20220112-195994	5	76.3	139.0	102.8	41.5	103.0	27.0	69.9	143.9	107.8	53.9	103.6	32.7
Zica-20230518-233391	3	104.4	120.9	120.7	8.2	115.3	9.5	112.2	129.4	126.7	8.6	122.8	9.3
Zica-20230519-232950	2	93.4	151.1	122.2	28.8	122.2	40.8	105.5	160.3	132.9	27.4	132.9	38.7
Zica-20230723-233394	7	88.5	123.8	121.2	9.1	114.8	13.2	91.5	135.2	121.8	14.4	119.7	15.1
Zica-20230723-233395	6	106.1	126.8	117.1	12.6	116.9	8.3	112.6	129.5	120.7	7.9	120.7	6.3
Zica-20240227-233396	7	105.3	150.3	119.0	28.2	126.9	18.1	112.3	155.8	123.4	33.1	131.0	18.9
Zica-20240227-240128	1	138.4	138.4	138.4	0.0	138.4	NA	141.2	141.2	141.2	0.0	141.2	NA
Total	52	76.3	151.1	119.0	20.2	116.7	18.8	69.9	160.3	121.3	21.7	120.7	19.9

### Variant State Occurrence per MFAS-exposed Dive Cycle

Table S 3: Occurrence of Variant state for each dive cycle that contained detected MFAS sounds. The “State” column indicates the current dive-cycle-level state, while the “Switched to Variant State?” column indicates whether or not the whale switched from Typical to Variant state during the current dive cycle. In six cases, the whale was already *in* Variant state before the dive cycle with MFAS began, and then remained in Variant state during the exposed dive cycle; these rows have “Started Earlier” in the “Switched to Variant State?” column.

MFAS cSEL	MFAS RL	Sonar before EOE?	Whale ID	Start Time (UTC)	Previous State	State	Switched State?	to Variant	N Variant Dive Cycles	Variant State Duration (hr)
69.9	76.3	No	Zica-20220112-195994	2022-01-12 20:38:10.053	Typical	Typical	No		NA	NA
71.3	77.6	No	Zica-20220112-195994	2022-01-12 18:45:25.053	Variant	Typical	No		NA	NA
80.9	81.8	No	Zica-20211112-94819	2021-11-15 09:53:35.052	Typical	Typical	No		NA	NA
87.4	88.9	No	Zica-20211112-94819	2021-11-18 17:52:40.052	Typical	Typical	No		NA	NA

MFAS cSEL	MFAS RL	Sonar before EOE?	Whale ID	Start Time (UTC)	Previous State	State	Switched State?	to Variant	N Variant Dive Cycles	Variant State Duration (hr)
87.7	89.2	Yes	Zica-20211112-94819	2021-11-15 07:05:27.052	Typical	Typical	No		NA	NA
91.5	88.5	No	Zica-20230723-233394	2023-07-24 23:34:28.052	Typical	Typical	No		NA	NA
102.6	95.1	No	Zica-20191012-145101	2019-10-13 17:57:13.052	Typical	Typical	No		NA	NA
105.5	93.4	No	Zica-20230519-232950	2023-05-23 14:27:41.052	Typical	Typical	No		NA	NA
107.8	102.8	No	Zica-20220112-195994	2022-01-13 17:56:47.053	Typical	Typical	No		NA	NA
108.0	97.5	No	Zica-20191111-94810	2019-11-16 04:23:21.052	Typical	Typical	No		NA	NA
108.0	105.5	No	Zica-20211112-94819	2021-11-19 05:37:29.052	Typical	Typical	No		NA	NA
109.6	104.9	No	Zica-20230723-233394	2023-07-25 15:21:43.052	Typical	Typical	No		NA	NA
110.6	103.4	Yes	Zica-20191111-94810	2019-11-14 23:00:48.052	Typical	Typical	No		NA	NA
112.2	104.4	No	Zica-20230518-233391	2023-05-24 01:02:36.053	Typical	Typical	No		NA	NA
112.3	105.3	Yes	Zica-20240227-233396	2024-03-06 23:16:40.052	Typical	Typical	No		NA	NA
112.6	106.1	Yes	Zica-20230723-233395	2023-07-25 18:05:29.052	Typical	Variant	Yes		3	2.7
112.8	119.0	No	Zica-20240227-233396	2024-03-05 17:14:39.052	Typical	Typical	No		NA	NA
115.1	109.6	Yes	Zica-20230723-233395	2023-07-25 03:58:24.052	Typical	Variant	Yes		1	3.5
115.6	107.9	No	Zica-20211113-195993	2021-11-16 20:17:20.052	Variant	Variant	Started Earlier		37	72.4
116.2	118.3	Yes	Zica-20211112-94819	2021-11-18 20:52:08.052	Typical	Typical	No		NA	NA
116.9	110.8	Yes	Zica-20240227-233396	2024-03-04 04:10:40.052	Variant	Variant	Started Earlier		5	11.2
117.2	106.4	No	Zica-20191012-144029	2019-10-15 19:00:27.052	Typical	Typical	No		NA	NA
118.1	122.6	Yes	Zica-20211112-94819	2021-11-16 21:55:32.052	Typical	Typical	No		NA	NA
120.4	114.8	Yes	Zica-20230723-233395	2023-07-24 03:00:46.052	Typical	Typical	No		NA	NA
120.7	120.9	Yes	Zica-20230723-233394	2023-07-25 22:47:23.052	Typical	Typical	No		NA	NA
120.9	124.9	No	Zica-20230723-233395	2023-07-25 15:34:14.052	Typical	Typical	No		NA	NA
121.8	121.2	Yes	Zica-20230723-233394	2023-07-25 03:07:29.052	Typical	Typical	No		NA	NA
122.2	107.4	Yes	Zica-20191012-145101	2019-10-17 08:55:31.052	Typical	Variant	Yes		7	15.2

MFAS cSEL	MFAS RL	Sonar before EOE?	Whale ID	Start Time (UTC)	Previous State	State	Switched State?	to Variant	N Variant Dive Cycles	Variant State Duration (hr)
123.4	117.9	No	Zica-20240227-233396	2024-03-07 22:57:57.052	Typical	Typical	No		NA	NA
123.9	124.9	Yes	Zica-20211112-94819	2021-11-17 00:34:28.052	Typical	Typical	No		NA	NA
125.2	119.1	Yes	Zica-20220112-195994	2022-01-13 21:32:29.053	Typical	Typical	No		NA	NA
125.4	126.8	Yes	Zica-20230723-233395	2023-07-23 20:45:43.052	Typical	Typical	No		NA	NA
125.6	119.9	Yes	Zica-20191111-94810	2019-11-16 07:49:35.052	Typical	Typical	No		NA	NA
125.7	118.2	Yes	Zica-20211113-195993	2021-11-17 06:51:47.052	Variant	Variant	Started Earlier		37	72.4
126.3	121.5	Yes	Zica-20230723-233394	2023-07-24 03:34:14.052	Typical	Variant	Yes		1	1.8
126.7	120.9	Yes	Zica-20230518-233391	2023-05-24 03:22:02.053	Typical	Variant	Yes		6	18.4
129.4	120.7	Yes	Zica-20230518-233391	2023-05-24 04:57:39.053	Variant	Variant	Started Earlier		6	18.4
129.5	119.4	Yes	Zica-20230723-233395	2023-07-25 18:47:33.052	Variant	Variant	Started Earlier		3	2.7
132.9	122.5	Yes	Zica-20230723-233394	2023-07-25 18:26:05.052	Typical	Typical	No		NA	NA
135.2	123.8	Yes	Zica-20230723-233394	2023-07-23 20:46:59.052	Typical	Typical	No		NA	NA
136.1	140.3	Yes	Zica-20211112-94819	2021-11-17 06:03:24.052	Typical	Variant	Yes		5	14.5
137.2	141.2	No	Zica-20191111-94810	2019-11-15 01:37:36.052	Typical	Variant	Yes		1	9.2
138.8	136.0	Yes	Zica-20191012-145101	2019-10-13 22:53:17.052	Typical	Variant	Yes		2	9.0
141.2	138.4	No	Zica-20240227-240128	2024-02-28 04:28:44.052	Typical	Typical	No		NA	NA
143.9	139.0	No	Zica-20220112-195994	2022-01-15 06:03:56.053	Typical	Variant	Yes		1	16.9
144.4	137.0	No	Zica-20240227-233396	2024-02-28 03:58:45.052	Variant	Variant	No		NA	NA
145.1	147.9	Yes	Zica-20191012-145101	2019-10-13 20:36:10.052	Typical	Typical	No		NA	NA
145.9	136.5	No	Zica-20191012-144029	2019-10-13 17:03:06.052	Typical	Variant	Yes		1	19.1
148.8	140.1	No	Zica-20191012-145101	2019-10-16 17:50:04.052	Typical	Typical	No		NA	NA
151.5	150.3	No	Zica-20240227-233396	2024-03-06 04:56:40.052	Variant	Variant	Started Earlier		3	14.1
155.8	148.0	Yes	Zica-20240227-233396	2024-03-05 22:20:46.052	Typical	Variant	Yes		3	14.1
160.3	151.1	No	Zica-20230519-232950	2023-05-24 01:57:07.052	Typical	Variant	Yes		2	10.2

Here, we see that whales transitioned to Variant state in 12 out of 52 MFAS-exposed dive cycles (23.1 percent).

If we consider only dive cycles where the MFAS cSEL was above  $110 \text{ dB re } 1\mu\text{Pa}^2*\text{sec}$ , then that becomes 12 out of 40 MFAS-exposed dive cycles (30 percent).

### **MFAS Received Level Data Table**

All received level values (for each received sound, as opposed to summarised over 5-minute or dive-cycle periods) are also available as text files.

File name: `mfas-raw-rls.csv` (located in the `data` directory).

Note: Each table printed above is also available as a text file in the data directory.

### Tallying 5-Minute States

Table S 4: Occurrences of each of the four states at the five-minute timescale, by HHMM state and MFAS presence.

5-minute State	Typical Minute	5- Interval	Variant Minute	5- Interval	Typical	Per- cent	Variant	Per- cent
<b>MFAS</b>								
1	90		70		10.3		7.2	
2	37		60		4.2		6.1	
3	496		555		56.8		56.7	
4	251		294		28.7		30.0	
<b>No MFAS</b>								
1	3763		1772		28.5		26.8	
2	556		481		4.2		7.3	
3	5662		3606		42.9		54.4	
4	3232		764		24.5		11.5	

### Duration of Variant State

#### Data Variant State Bouts

Table S 5: Variant state bouts observed in the SMRT data, according to the fitted HHMM.

Whale ID	Bout Number	N Dive Cycles	Total Duration (h)	Initial MFAS cSEL	Start Time (UTC)
Zica-20191012-144029	1	4	15.5	0.0	2019-10-12 21:39:22.052
Zica-20191012-144029	2	1	19.1	145.9	2019-10-13 17:03:06.052
Zica-20191012-144029	3	1	2.8	0.0	2019-10-14 23:16:59.052
Zica-20191012-144029	4	3	9.3	0.0	2019-10-15 07:19:13.052
Zica-20191012-144029	5	15	39.4	0.0	2019-10-16 01:05:08.052
Zica-20191012-145101	6	2	9.0	138.8	2019-10-13 22:53:17.052
Zica-20191012-145101	7	1	4.1	0.0	2019-10-15 00:13:00.052
Zica-20191012-145101	8	4	9.7	0.0	2019-10-15 07:16:16.052
Zica-20191012-145101	9	1	6.2	0.0	2019-10-15 22:37:12.052
Zica-20191012-145101	10	7	15.2	122.2	2019-10-17 08:55:31.052
Zica-20191111-94810	11	3	6.5	0.0	2019-11-12 08:27:50.052
Zica-20191111-94810	12	5	16.8	0.0	2019-11-12 23:17:11.052

Whale ID	Bout Number	N Dive Cycles	Total Duration (h)	Initial MFAS cSEL	Start Time (UTC)
Zica-20191111-94810	13	1	9.2	137.2	2019-11-15 01:37:36.052
Zica-20211112-94819	14	1	3.0	0.0	2021-11-15 17:09:42.052
Zica-20211112-94819	15	3	6.2	0.0	2021-11-16 06:48:34.052
Zica-20211112-94819	16	5	14.5	136.1	2021-11-17 06:03:24.052
Zica-20211113-195993	17	37	72.4	0.0	2021-11-14 08:22:24.052
Zica-20211113-195993	18	5	9.3	0.0	2021-11-17 11:51:09.052
Zica-20220112-195994	19	1	16.9	143.9	2022-01-15 06:03:56.053
Zica-20220112-195994	20	1	8.1	0.0	2022-01-17 13:02:07.053
Zica-20230518-233391	21	5	14.5	0.0	2023-05-19 04:04:22.053
Zica-20230518-233391	22	4	12.5	0.0	2023-05-20 23:37:26.053
Zica-20230518-233391	23	2	7.7	0.0	2023-05-21 15:54:56.053
Zica-20230518-233391	24	1	2.8	0.0	2023-05-22 02:58:40.053
Zica-20230518-233391	25	6	13.3	0.0	2023-05-22 19:45:07.053
Zica-20230518-233391	26	6	18.4	126.7	2023-05-24 03:22:02.053
Zica-20230518-233391	27	9	34.1	0.0	2023-05-25 03:03:32.053
Zica-20230518-233391	28	1	1.7	0.0	2023-05-26 23:09:59.053
Zica-20230518-233391	29	9	26.9	0.0	2023-05-27 03:34:56.053
Zica-20230518-233391	30	2	7.8	0.0	2023-05-28 22:06:39.053
Zica-20230519-232950	31	1	6.2	0.0	2023-05-20 09:33:59.052
Zica-20230519-232950	32	1	2.1	0.0	2023-05-21 09:25:42.052
Zica-20230519-232950	33	6	11.3	0.0	2023-05-22 00:39:26.052
Zica-20230519-232950	34	2	5.6	0.0	2023-05-23 17:43:16.052
Zica-20230519-232950	35	2	10.2	160.3	2023-05-24 01:57:07.052
Zica-20230519-232950	36	3	10.6	0.0	2023-05-26 07:12:40.052
Zica-20230519-232950	37	1	5.0	0.0	2023-05-28 07:34:21.052
Zica-20230519-232950	38	4	10.1	0.0	2023-05-29 05:01:01.052
Zica-20230723-233394	39	1	1.8	126.3	2023-07-24 03:34:14.052
Zica-20230723-233394	40	4	12.6	0.0	2023-07-24 07:53:01.052
Zica-20230723-233395	41	1	3.5	115.1	2023-07-25 03:58:24.052
Zica-20230723-233395	42	3	2.7	112.6	2023-07-25 18:05:29.052
Zica-20240227-233396	43	1	5.9	0.0	2024-02-29 06:10:52.052
Zica-20240227-233396	44	1	2.9	0.0	2024-03-02 06:03:32.052
Zica-20240227-233396	45	3	7.4	0.0	2024-03-03 05:32:14.052
Zica-20240227-233396	46	5	11.2	0.0	2024-03-04 02:04:37.052
Zica-20240227-233396	47	4	10.4	0.0	2024-03-05 02:24:28.052
Zica-20240227-233396	48	3	14.1	155.8	2024-03-05 22:20:46.052

Whale ID	Bout Number	N Dive Cycles	Total Duration (h)	Initial MFAS cSEL	Start Time (UTC)
Zica-20240227-233396	49	1	2.2	0.0	2024-03-07 02:08:41.052
Zica-20240227-233396	50	2	5.2	0.0	2024-03-07 07:06:11.052
Zica-20240227-233396	51	2	3.6	0.0	2024-03-08 02:29:58.052
Zica-20240227-240128	52	1	1.2	0.0	2024-03-02 03:39:15.052
Zica-20240227-240128	53	1	1.0	0.0	2024-03-02 18:17:34.052

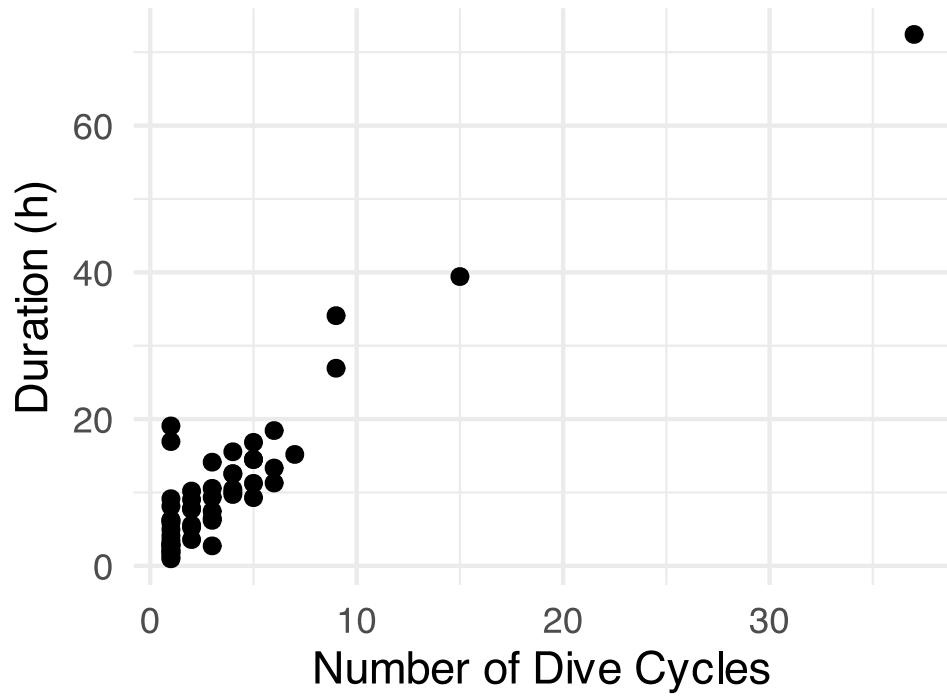


Figure S 1: Histogram of observed and simulated Variant state bouts.

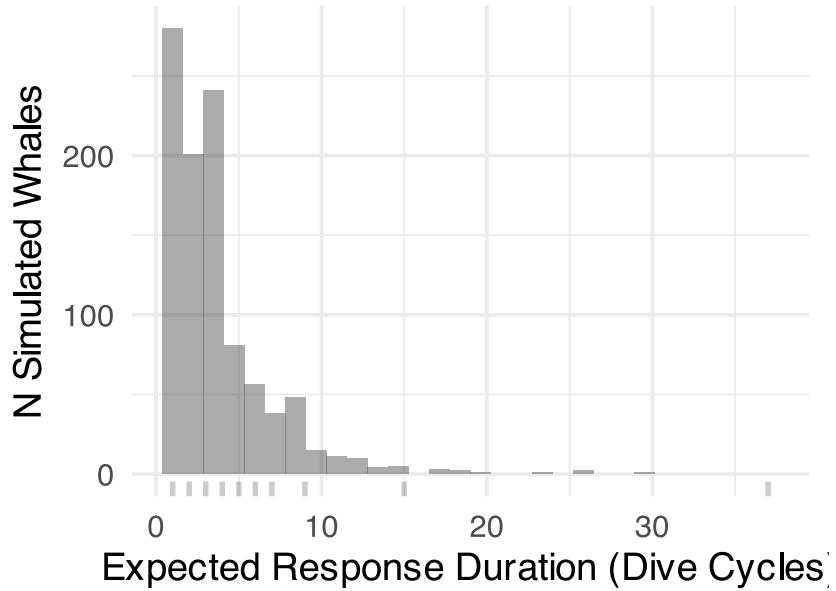


Figure S 2: Histogram of observed and simulated Variant state bouts.

### Variant State Summary

Table S 6: Summary of Variant state bout duration in dive cycles and hours, for both observed data and simulations based on the fitted HHMM (in which no MFAS exposure occurs after initiation of Variant state).

Type	Metric	median	IQR	mean	sd	min	max
Observed	Dive Cycles	2.0	3.0	3.8	5.4	1.0	37.0
Observed	Duration (h)	9.0	9.2	10.9	11.5	1.0	72.4
Simulated	Dive Cycles	3.0	4.0	3.6	3.3	1.0	29.0
Simulated	Duration (h)	7.5	10.7	10.7	10.5	0.3	109.6

## Time-series plots for each tag deployment

### Dive Profile Plots

Below are dive trace time-series plots for all whales with RLs and coarse-scale state indicated.

In these plots:

- Grey shading indicates a dive cycle that was classed as Variant state
- Received levels are shown in lower plots. The lines indicate cumulative SEL (cumulative by dive cycle; for the 5-minute scale, SEL is cumulative across a single dive cycle up to the end of the current 5-minute interval). Dots indicate RMS RL.
- Depths shown are the medians in 5-minute intervals (so may not reach the surface, etc.)
- Colors indicate the fine-scale (5-minute) states
- In interactive plots (in html output file format),
  - You can zoom!
  - Mouse over the RL dot to get the exact RL value

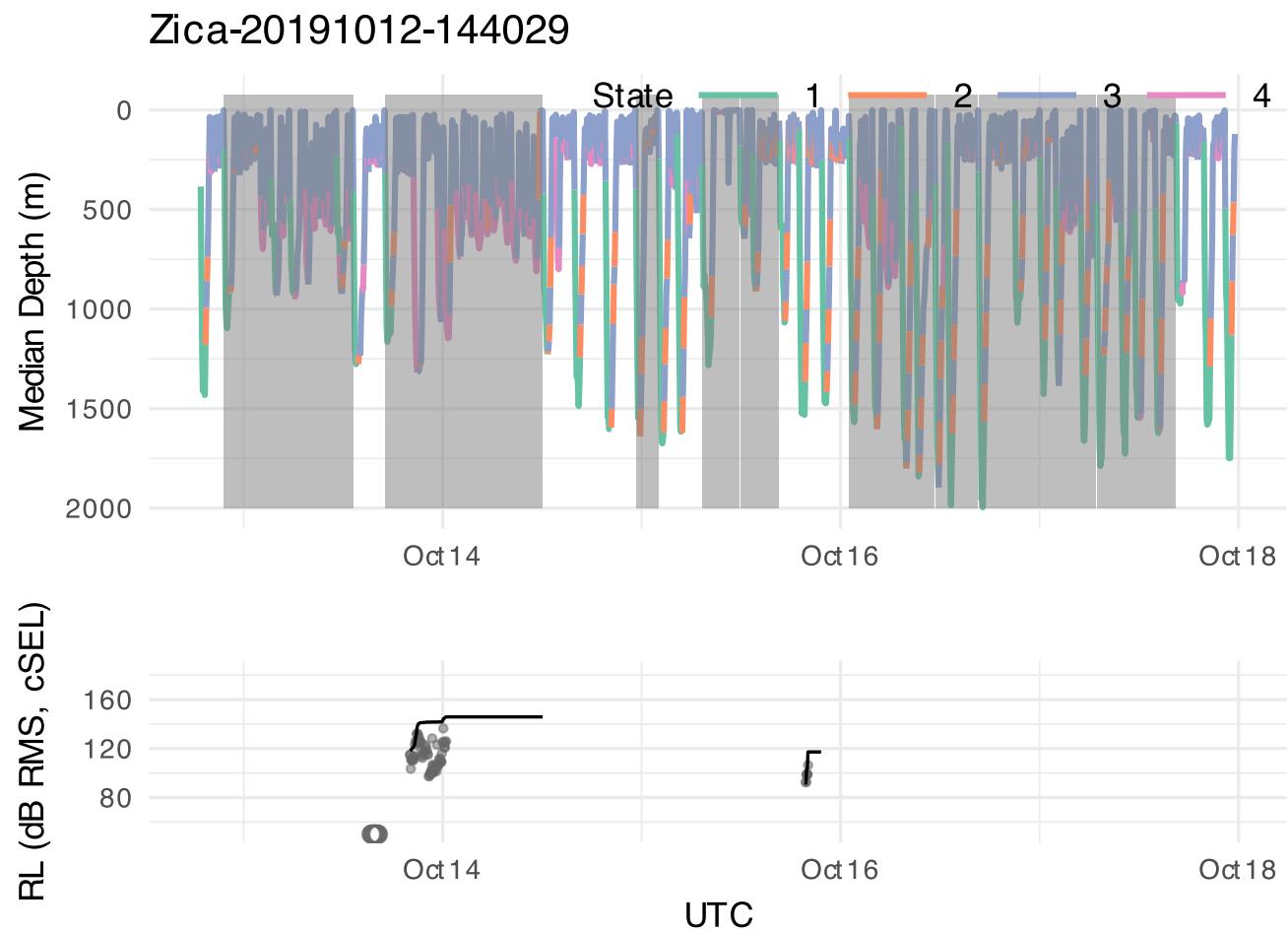


Figure S 3: Dive depth profile for tag Zica-20191012-144029, with HHMM state and sound exposure information. Open circles indicate times echosounders were detected on the tag record.

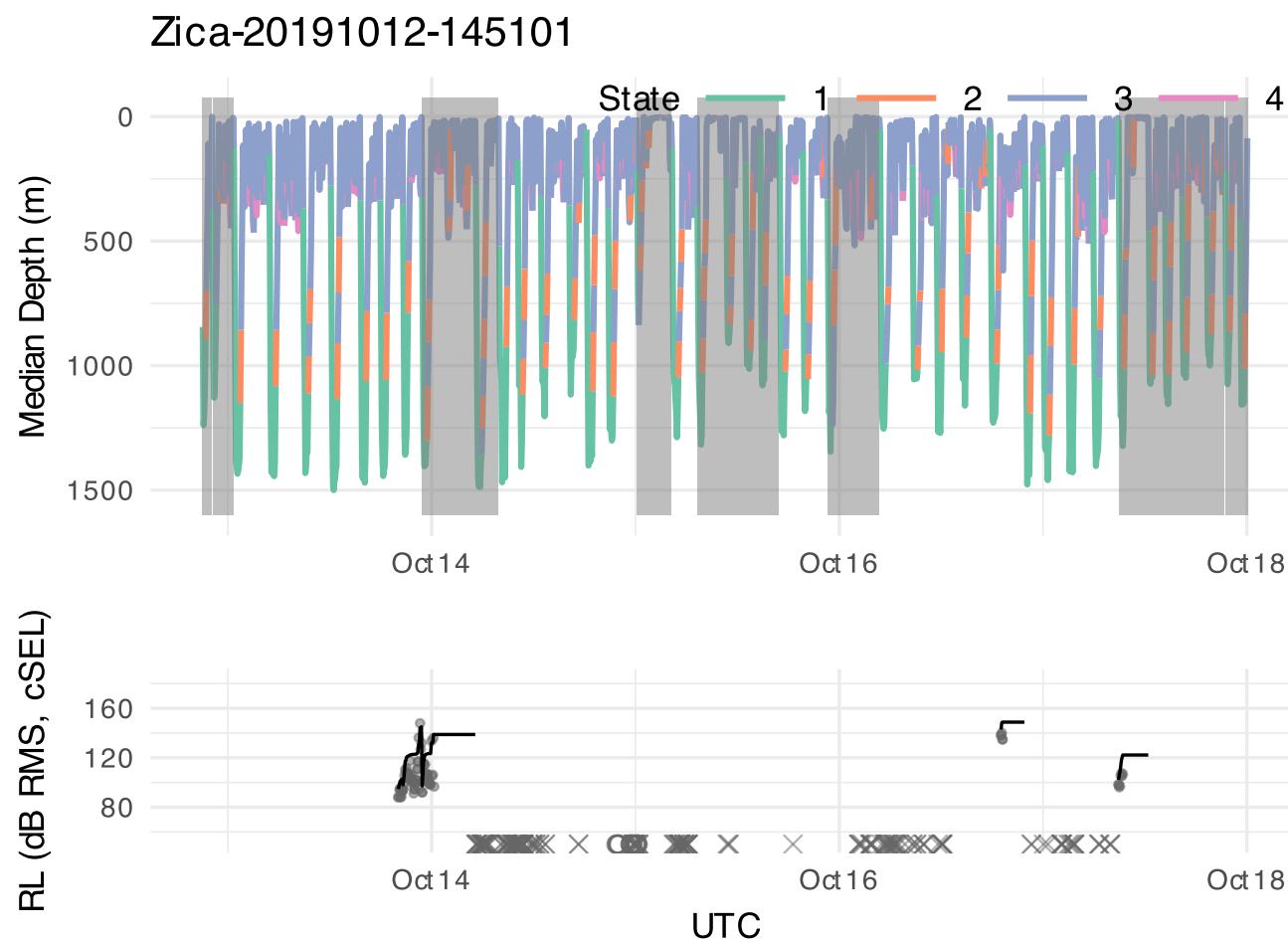


Figure S 4: Dive depth profile for tag Zica-20191012-145101, with HHMM state and sound exposure information. Symbols indicate times various sounds were detected on the tag record: open circles for echosounders and Xs for impulsive sounds.

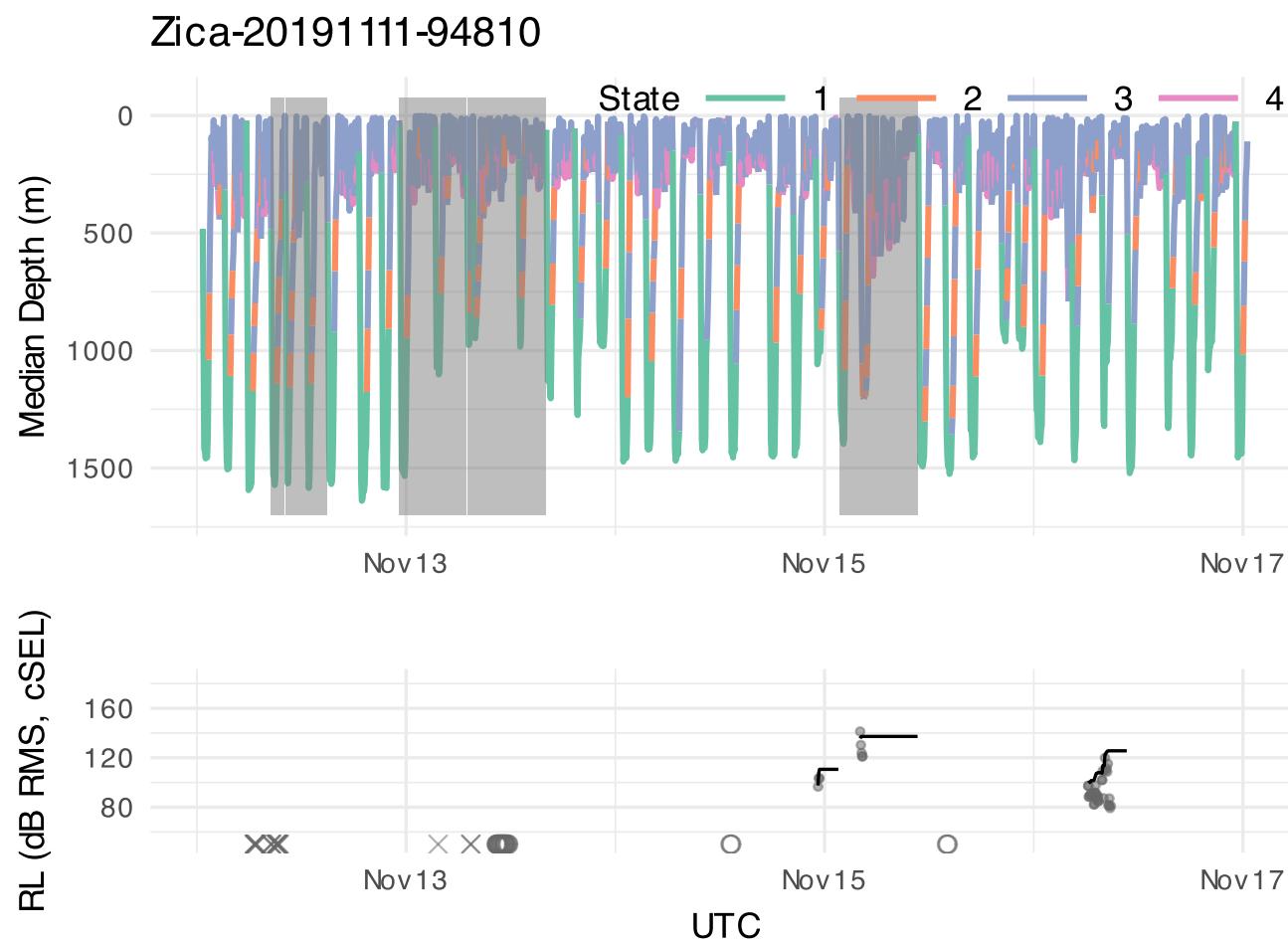


Figure S 5: Dive depth profile for tag Zica-20191111-94810, with HHMM state and sound exposure information. Symbols indicate times various sounds were detected on the tag record: open circles for echosounders and Xs for impulsive sounds.

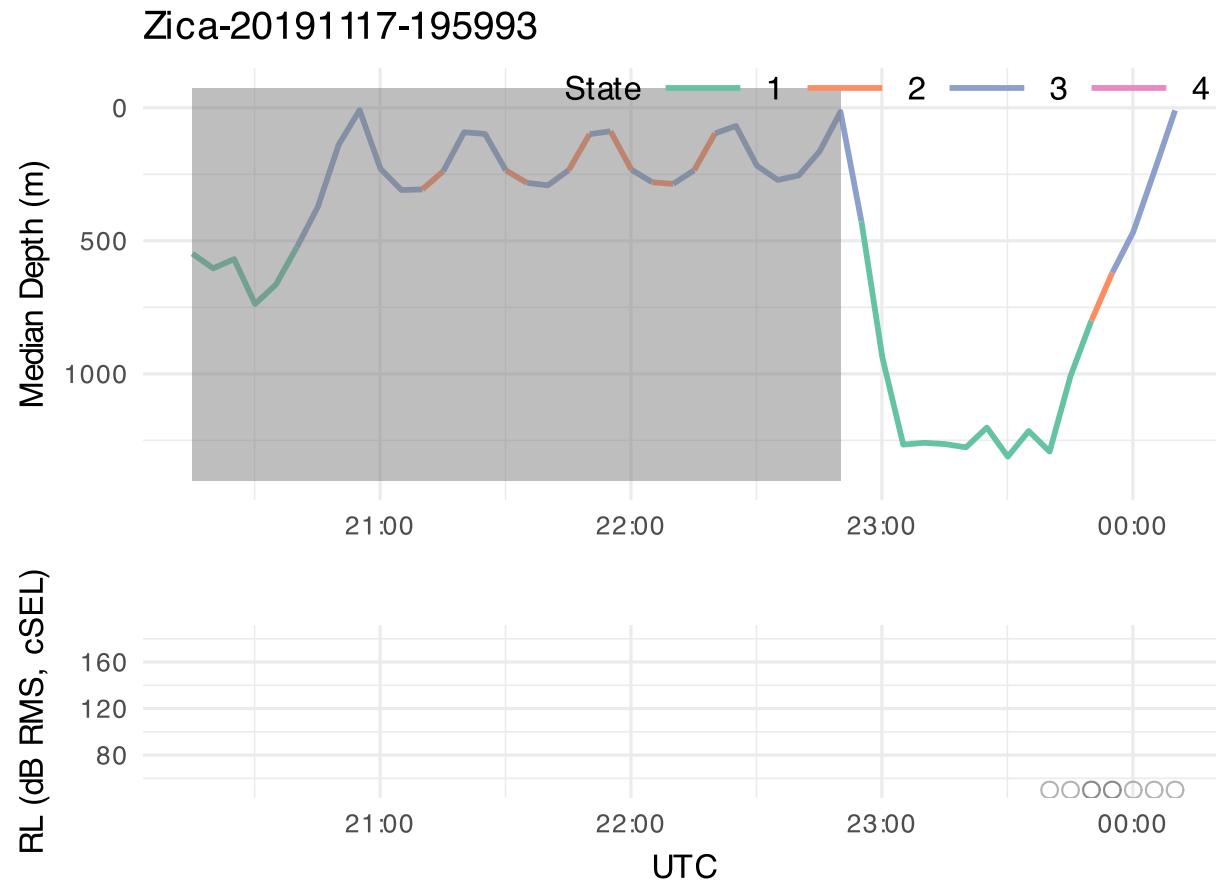


Figure S 6: Dive depth profile for tag Zica-20191117-195993, with HHMM state and sound exposure information. Open circles indicate times echosounders were detected on the tag record.

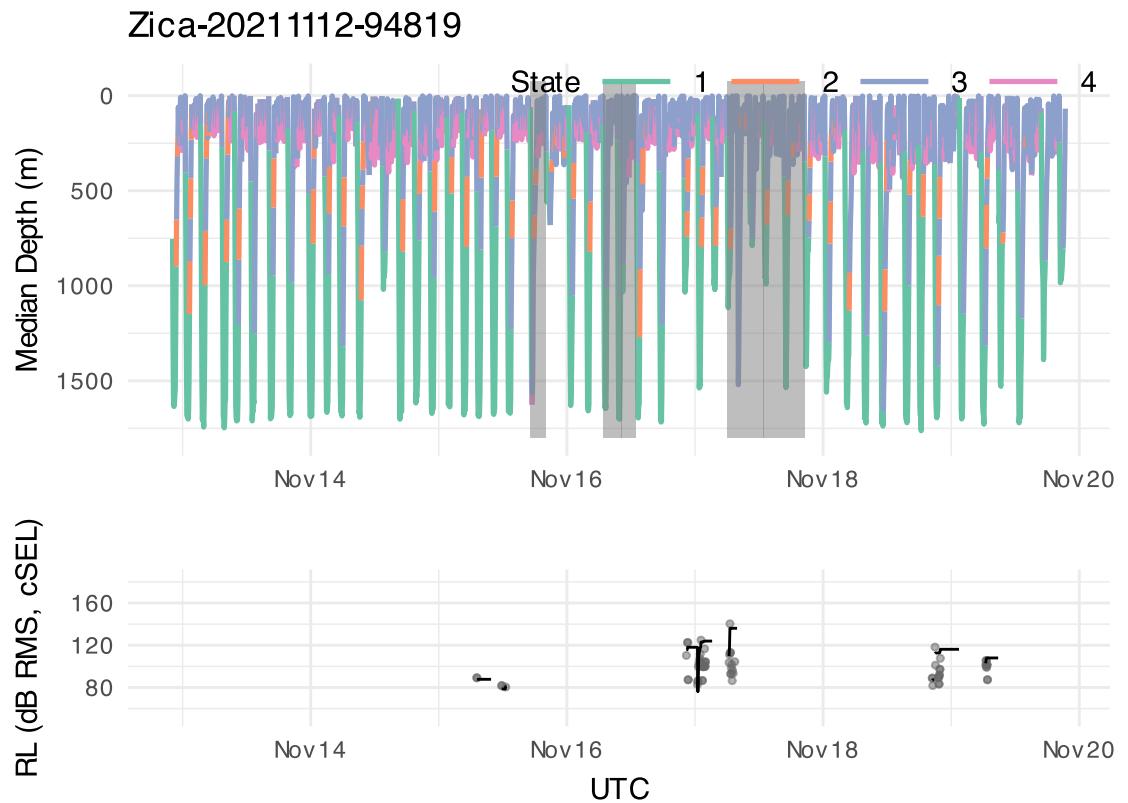


Figure S 7: Dive depth profile for tag Zica-20211112-94819, with HHMM state and sound exposure information.

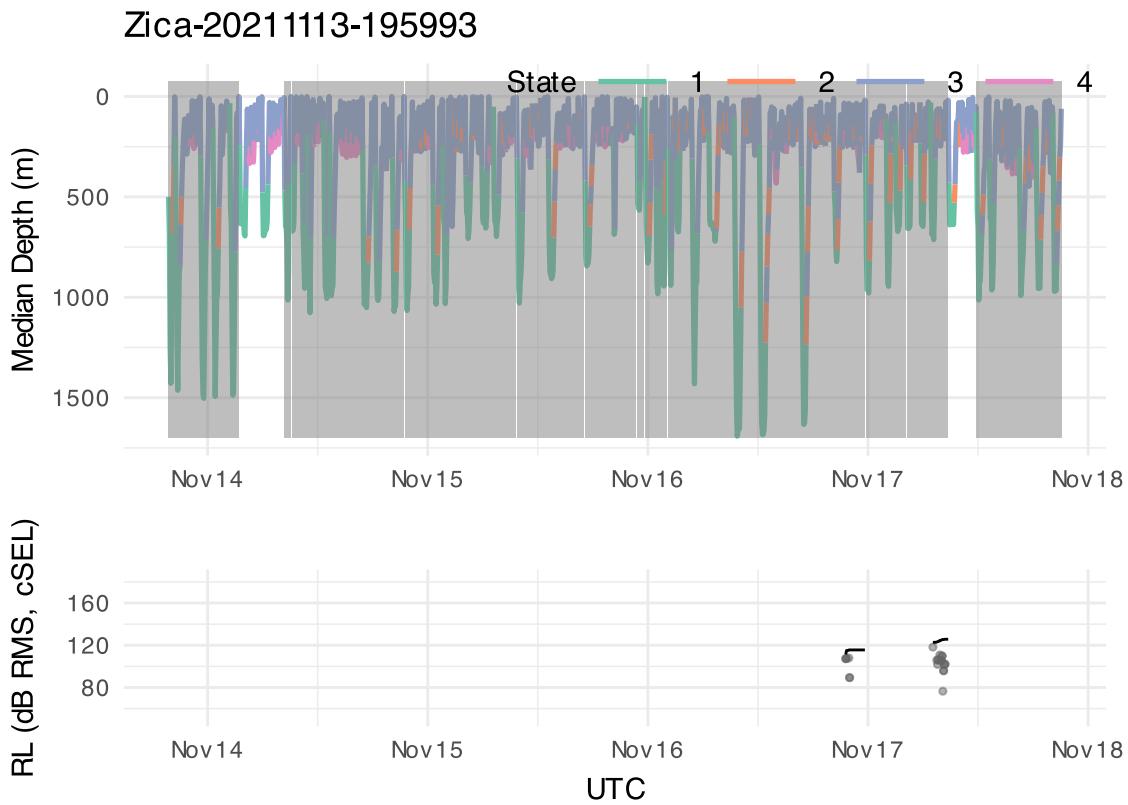


Figure S 8: Dive depth profile for tag Zica-20211113-195993, with HHMM state and sound exposure information.

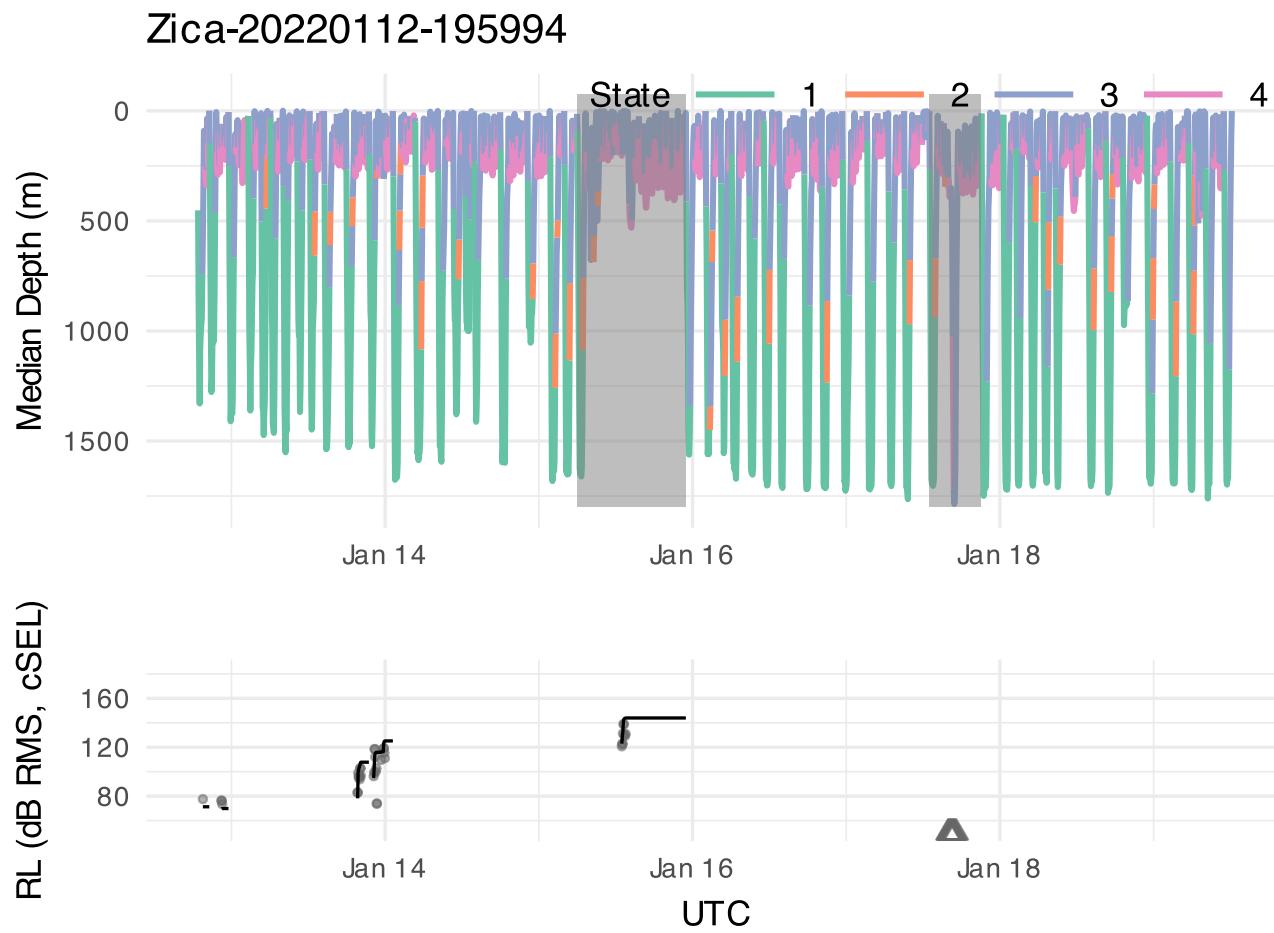


Figure S 9: Dive depth profile for tag Zica-20220112-195994, with HHMM state and sound exposure information. Open triangles indicate times orca sounds were detected on the tag record.

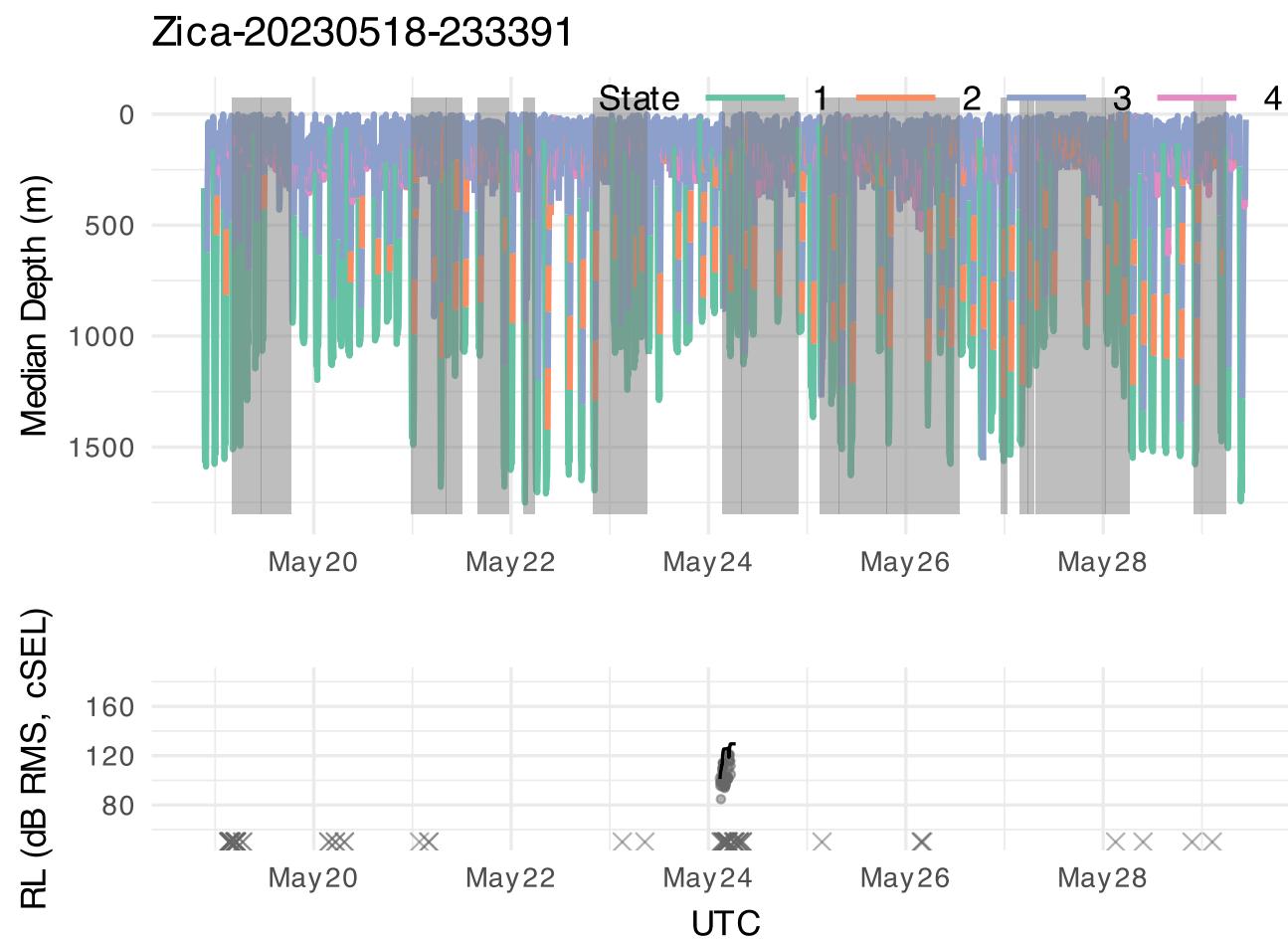


Figure S 10: Dive depth profile for tag Zica-20230518-233391, with HHMM state and sound exposure information. Xs indicate times impulsive sounds were detected on the tag record.

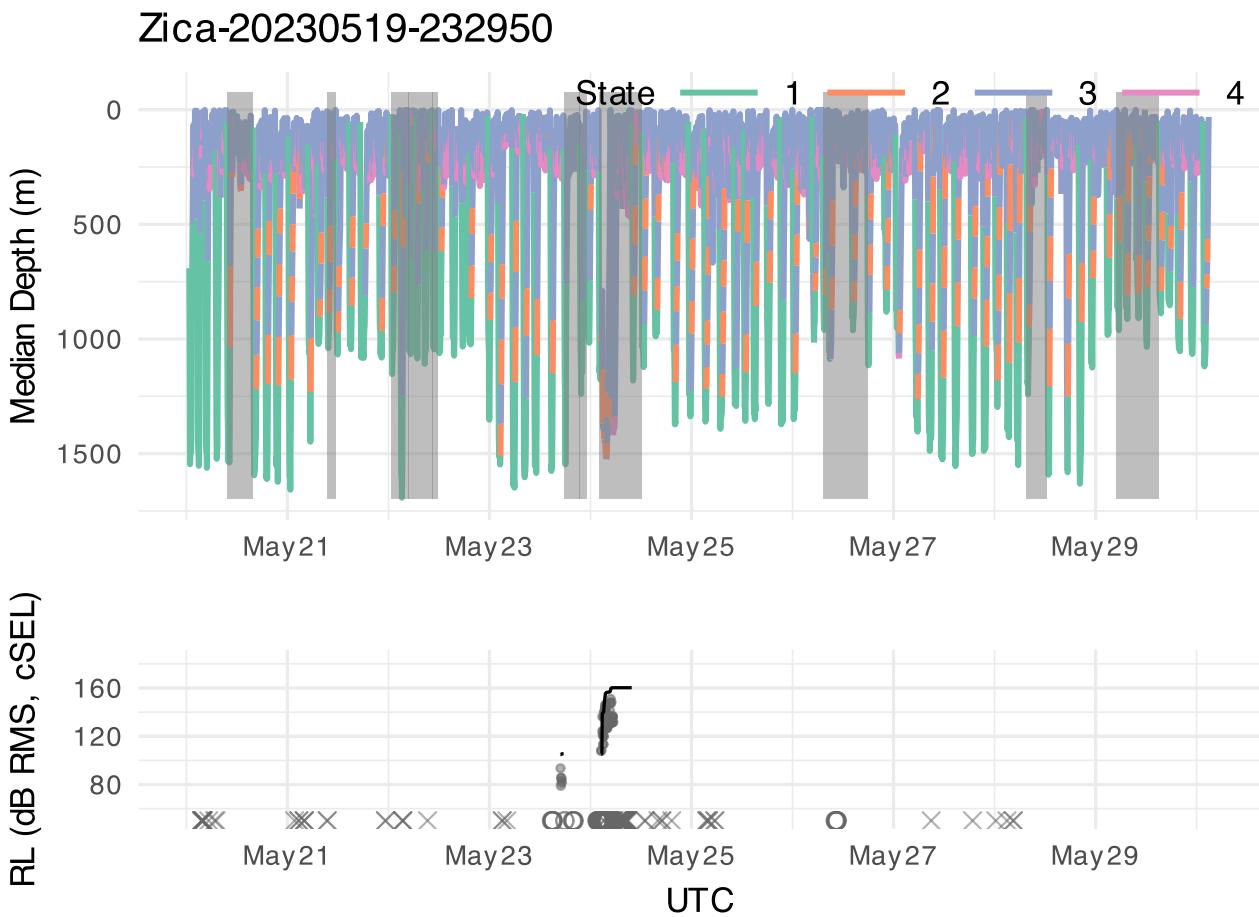


Figure S 11: Dive depth profile for tag Zica-20230519-232950, with HHMM state and sound exposure information. Symbols indicate times various sounds were detected on the tag record: open circles for echosounders and Xs for impulsive sounds.

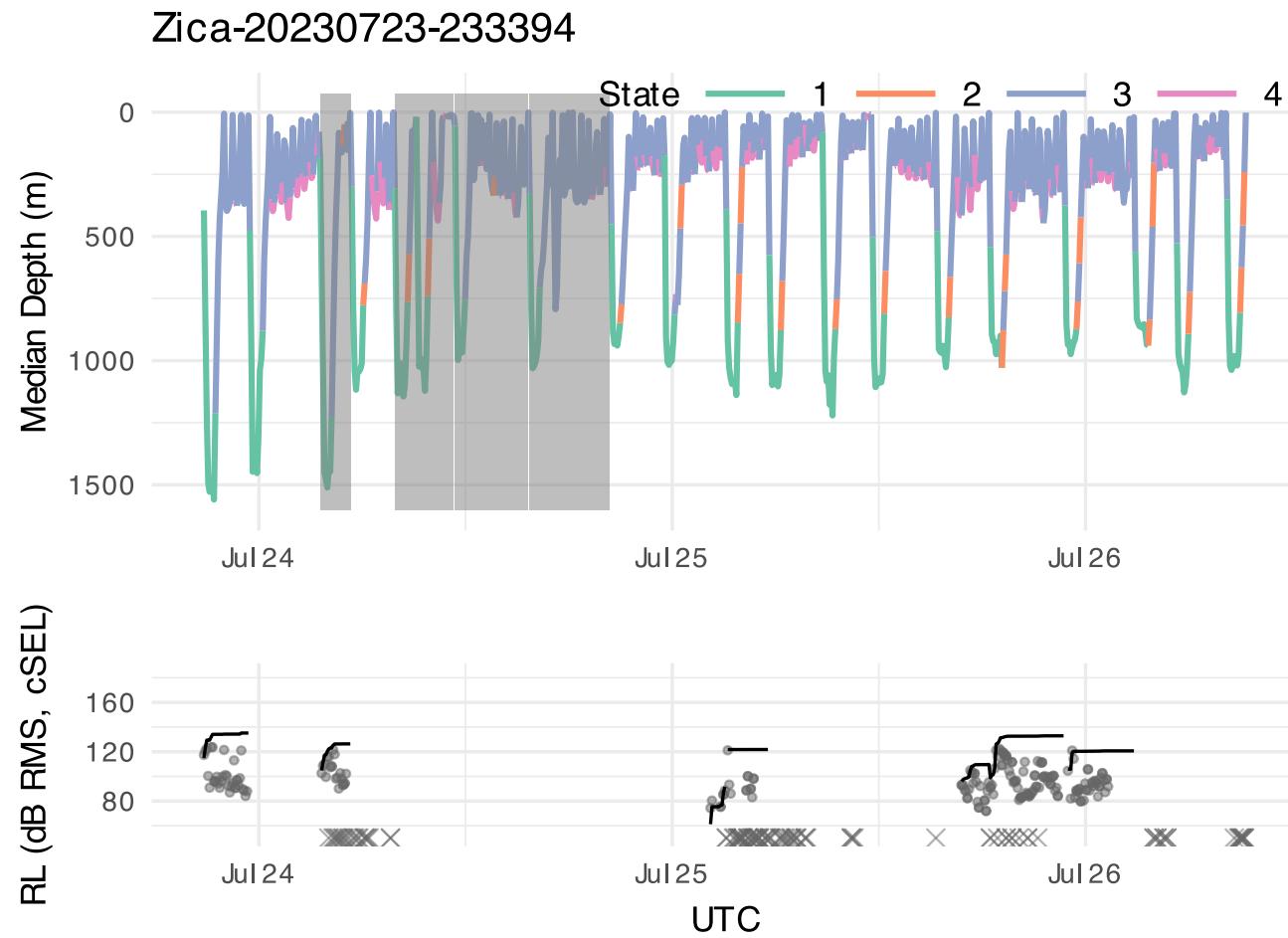


Figure S 12: Dive depth profile for tag Zica-20230723-233394, with HHMM state and sound exposure information. Xs indicate times impulsive sounds were detected on the tag record.

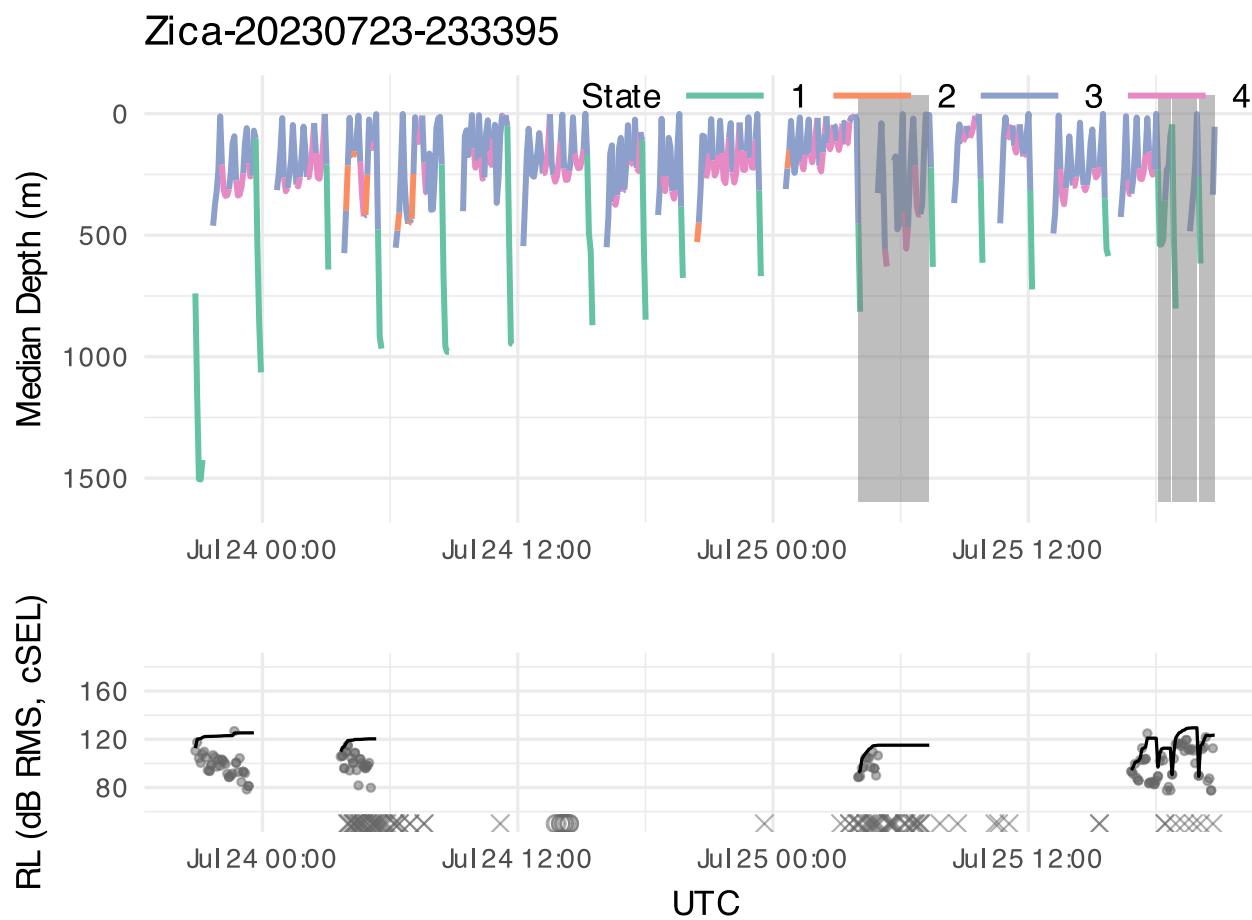


Figure S 13: Dive depth profile for tag Zica-20230723-233395, with HHMM state and sound exposure information. Symbols indicate times various sounds were detected on the tag record: open circles for echosounders and Xs for impulsive sounds.

## Zica-20240227-233396

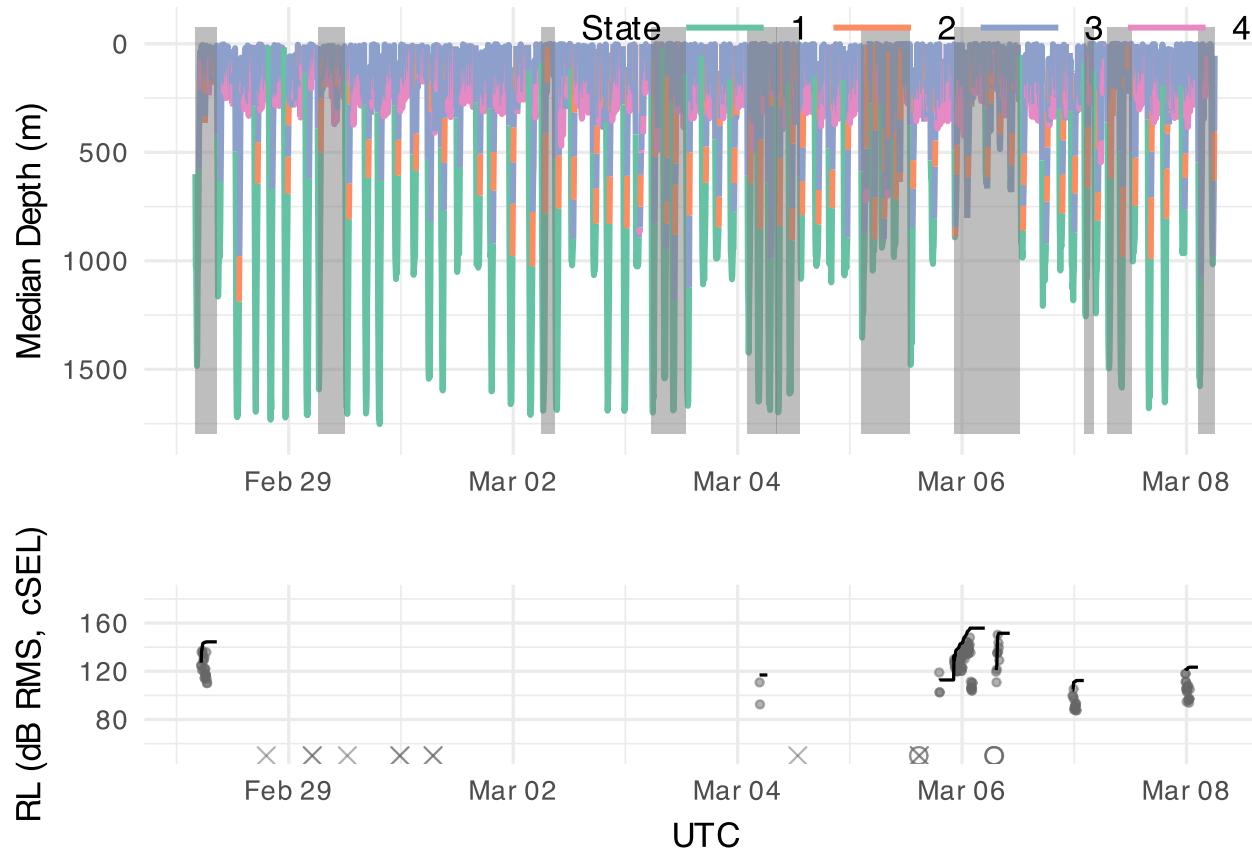


Figure S 14: Dive depth profile for tag Zica-20240227-233396, with HHMM state and sound exposure information. Symbols indicate times various sounds were detected on the tag record: open circles for echosounders and Xs for impulsive sounds.

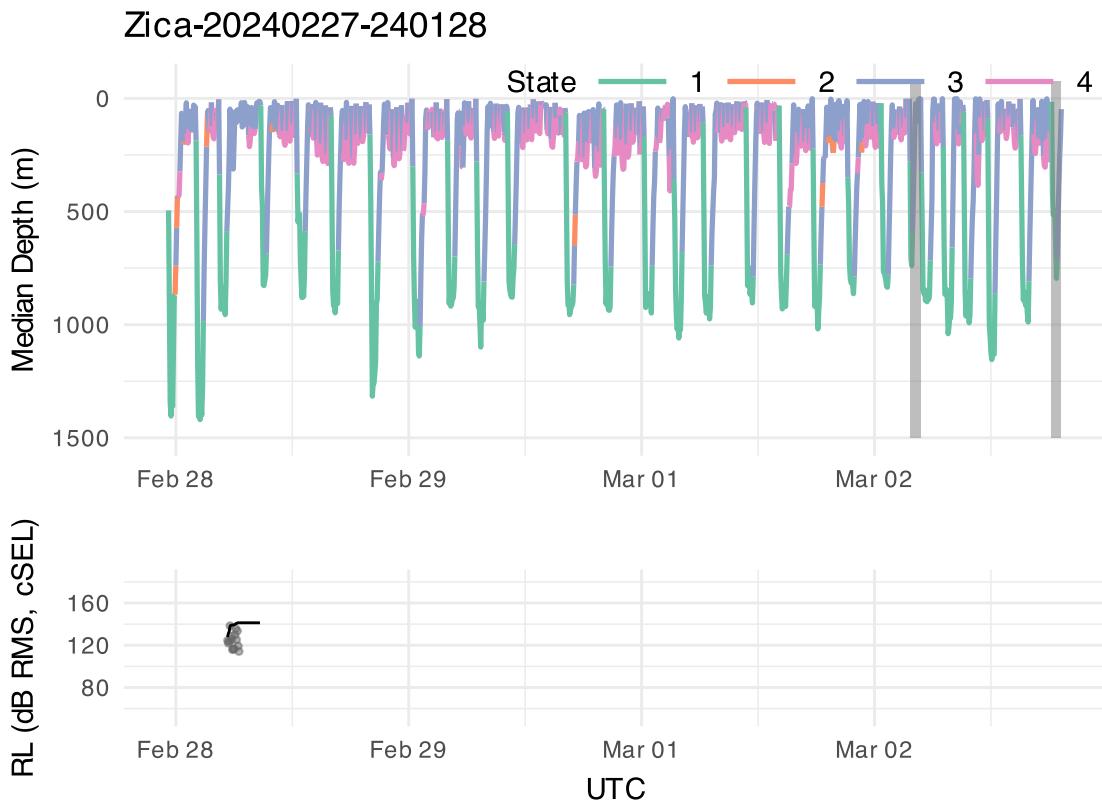


Figure S 15: Dive depth profile for tag Zica-20240227-240128, with HHMM state and sound exposure information.

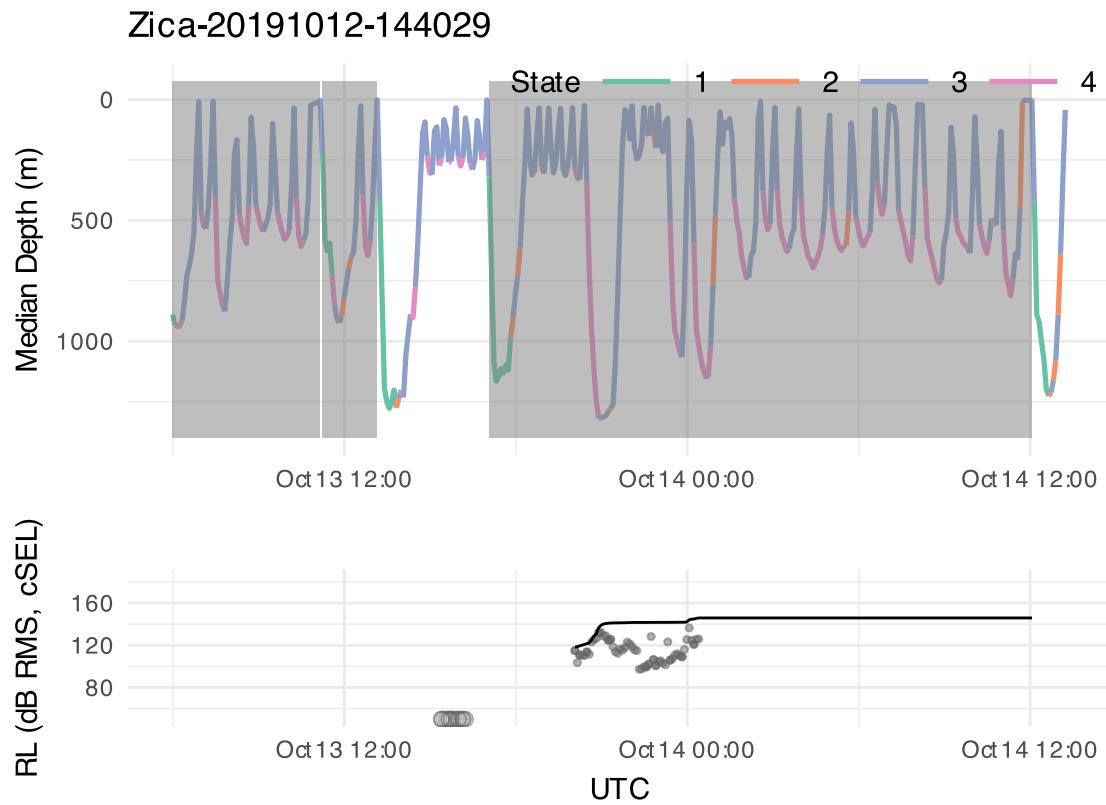


Figure S 16: Zoomed-in view of data from tag Zica-20191012-144029, from 10/13/2019 05:58 until 10/14/2019 13:14 UTC.

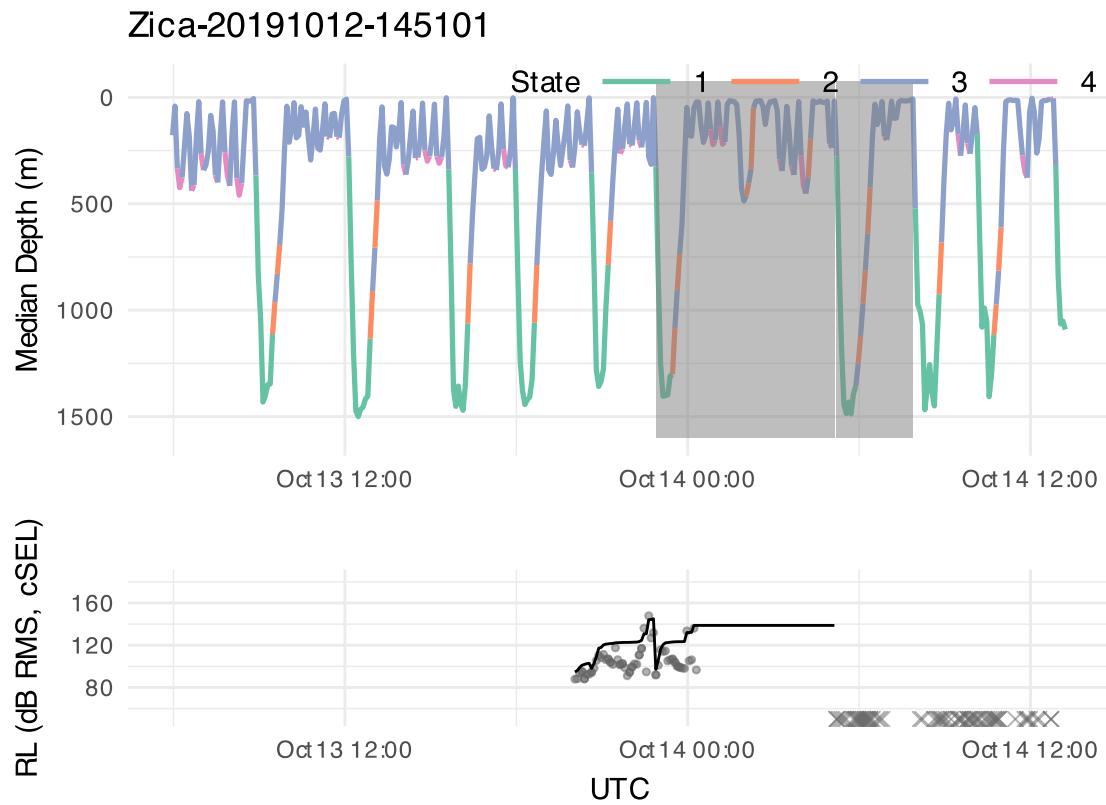


Figure S 17: Zoomed-in view of data from tag Zica-20191012-145101, from 10/13/2019 05:58 until 10/14/2019 13:14 UTC.

## Dive Cycle Plots

Below are time-series plots for each whale, showing dive-cycle-scale observations (with “dive cycle number” on x axis). MFAS levels and coarse-scale state (decoded using the fitted HHMM and the Viterbi algorithm) are also indicated.

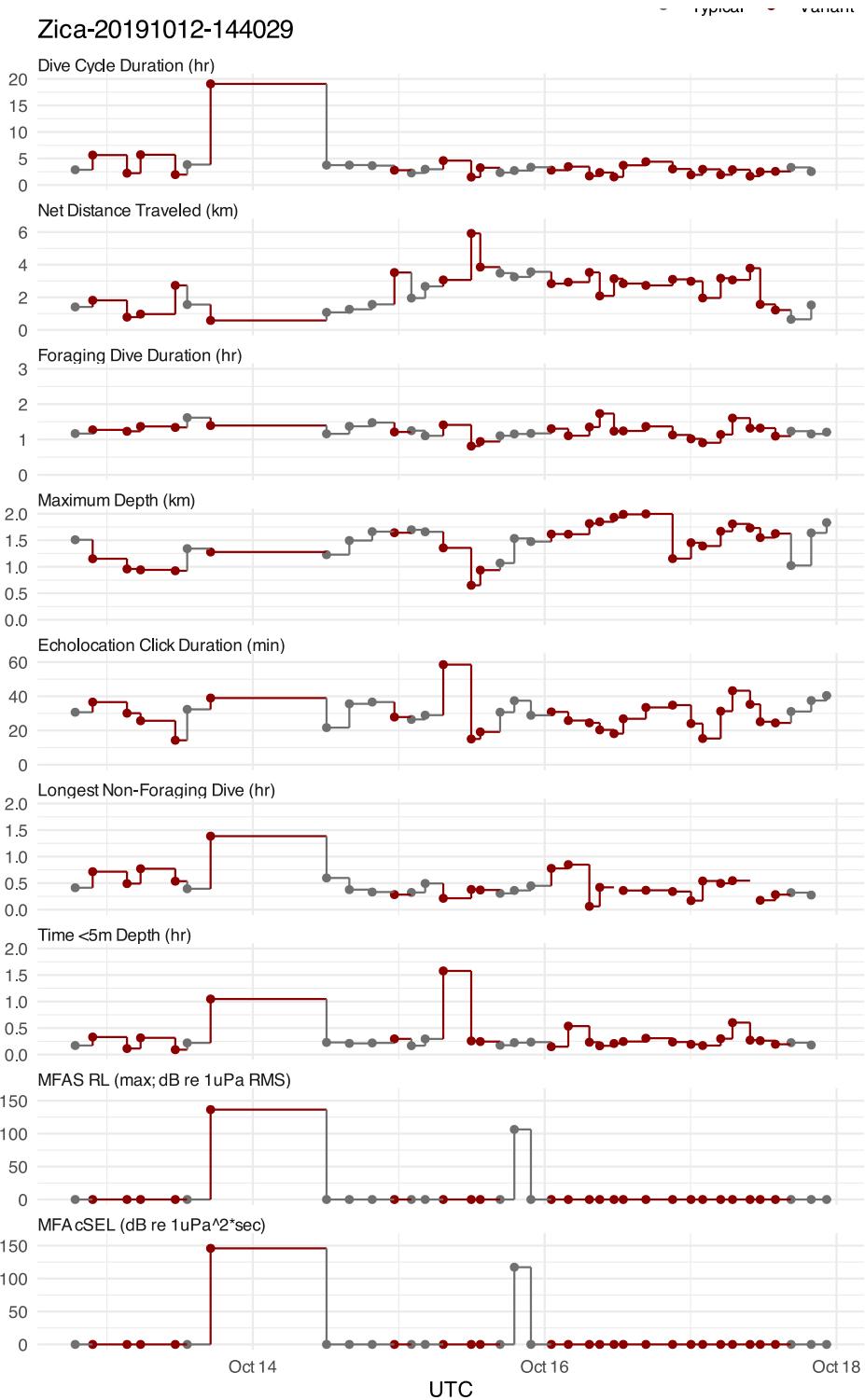


Figure S 18: HHMM input data streams for tag Zica-20191012-144029 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

### Zica-20191012-145101

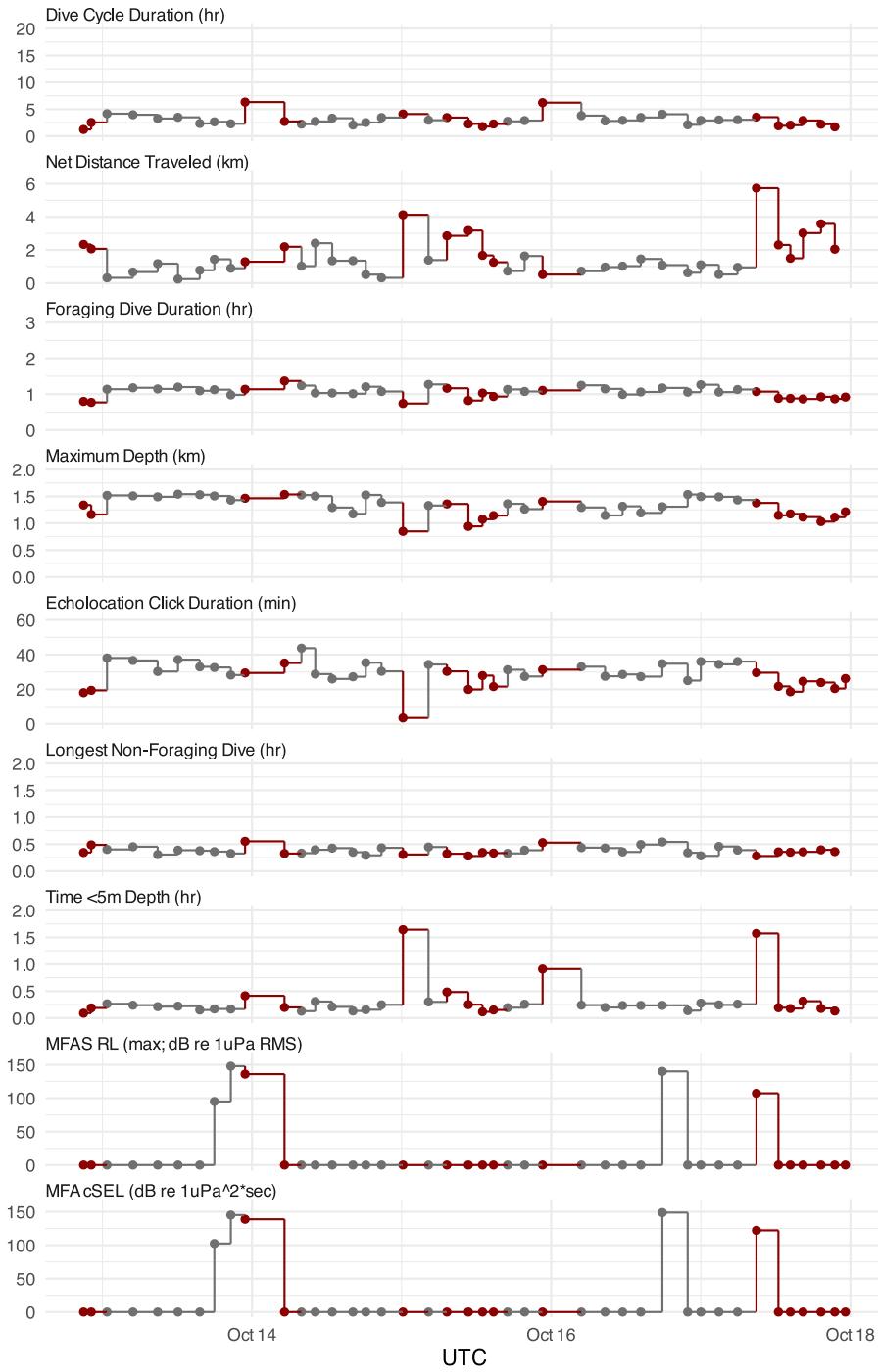


Figure S 19: HHMM input data streams for tag Zica-20191012-145101 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

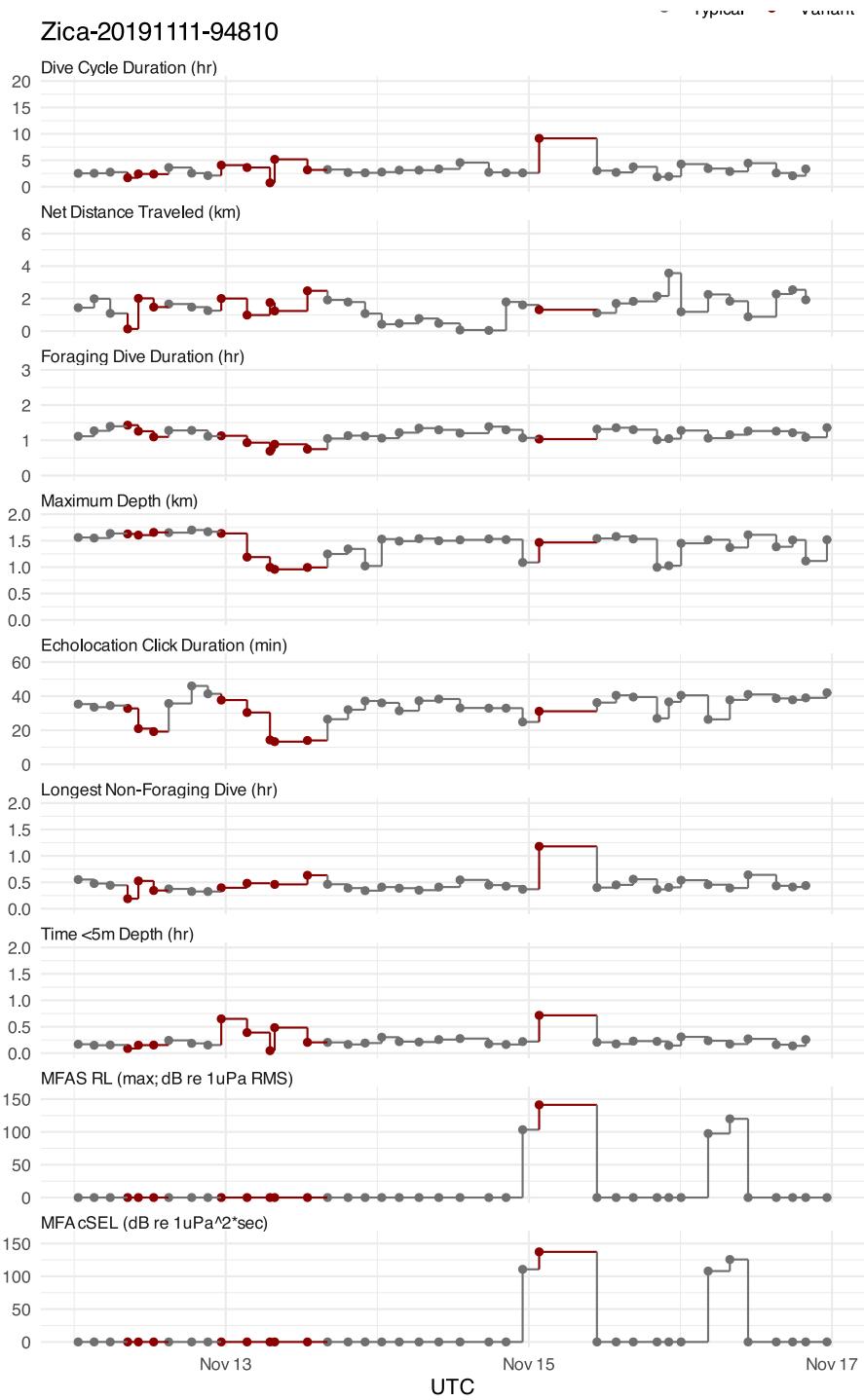


Figure S 20: HHMM input data streams for tag Zica-20191111-94810 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

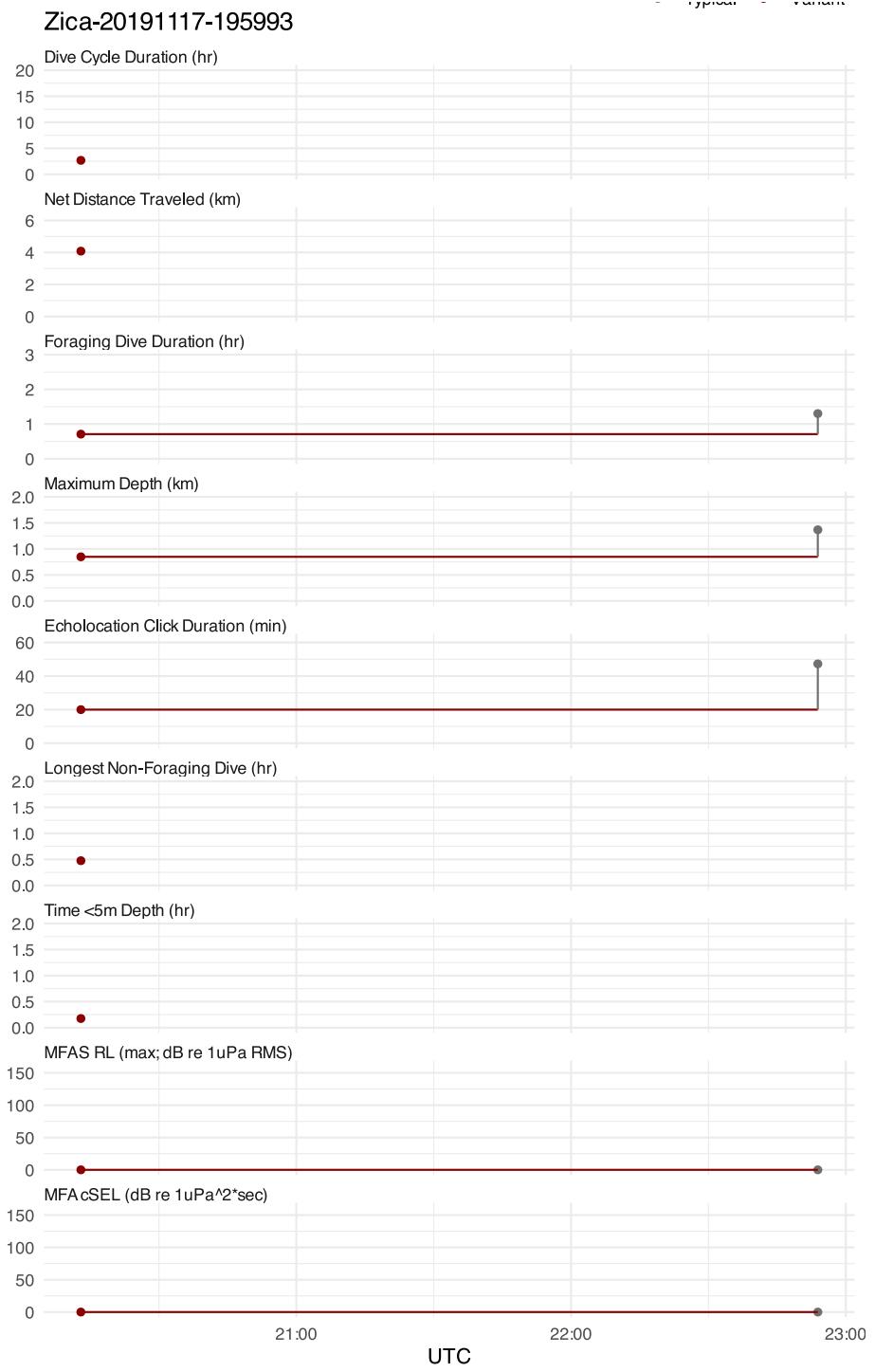


Figure S 21: HHMM input data streams for tag Zica-20191117-195993 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

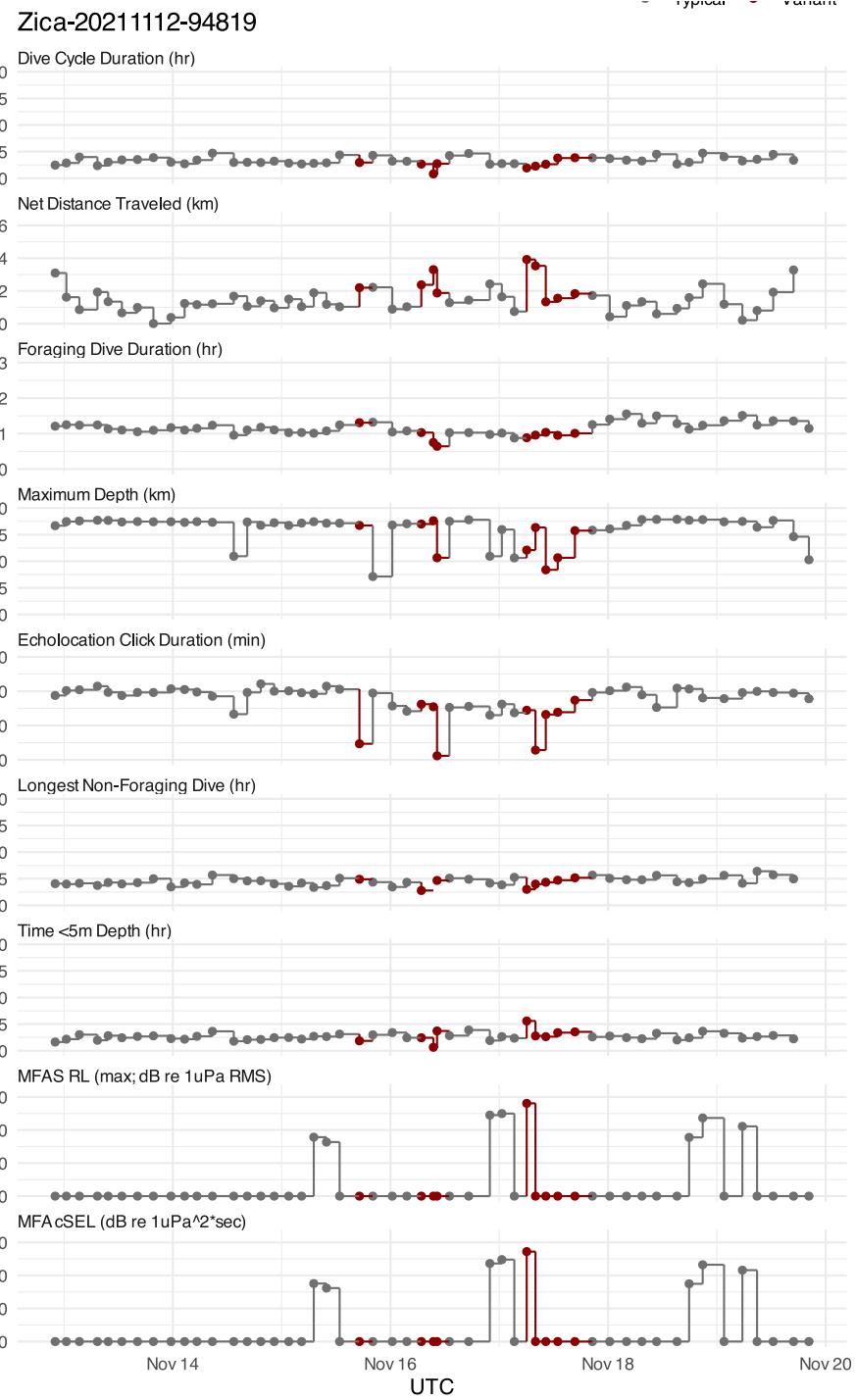


Figure S 22: HHMM input data streams for tag Zica-20211112-94819 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

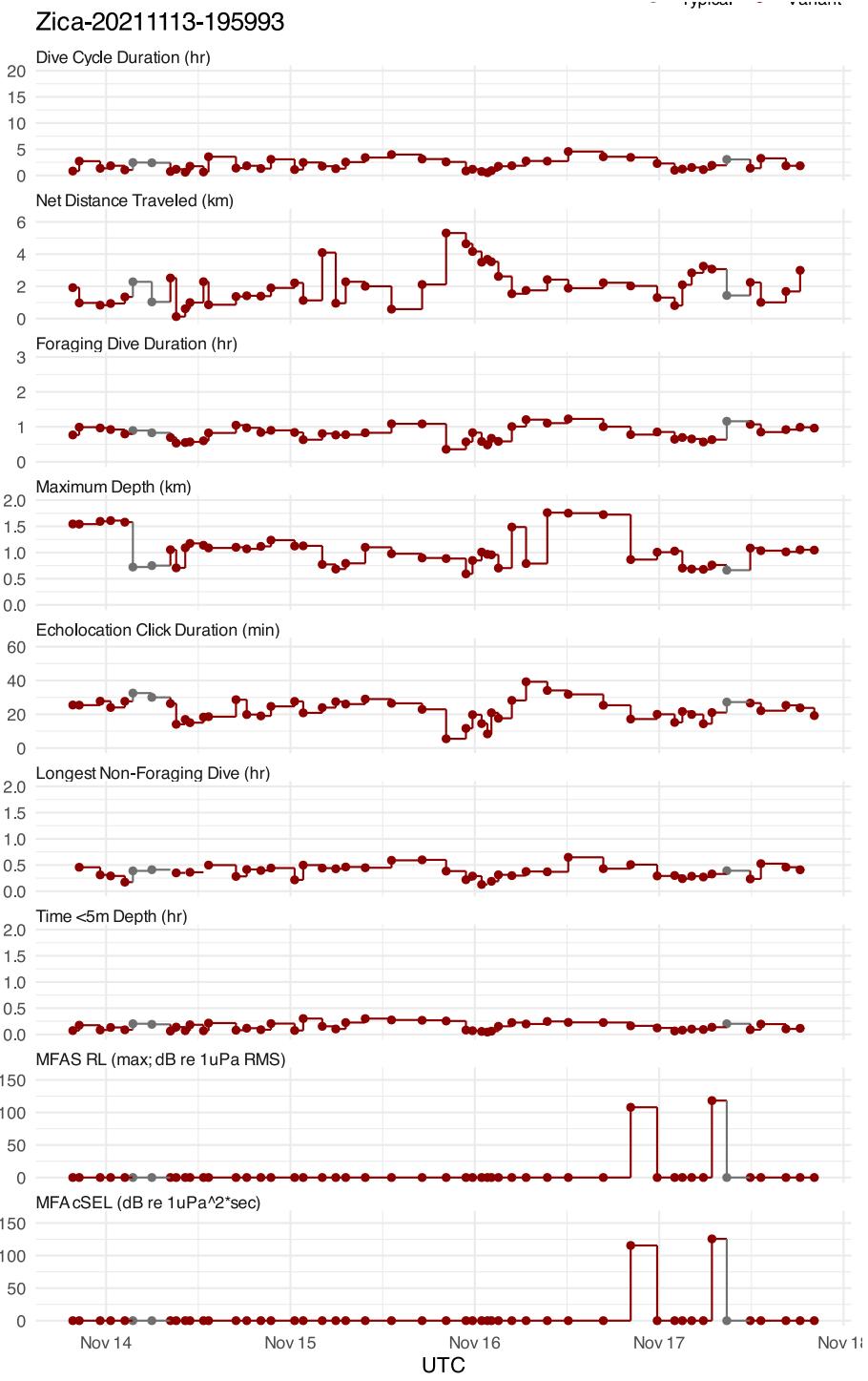


Figure S 23: HHMM input data streams for tag Zica-20211113-195993 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

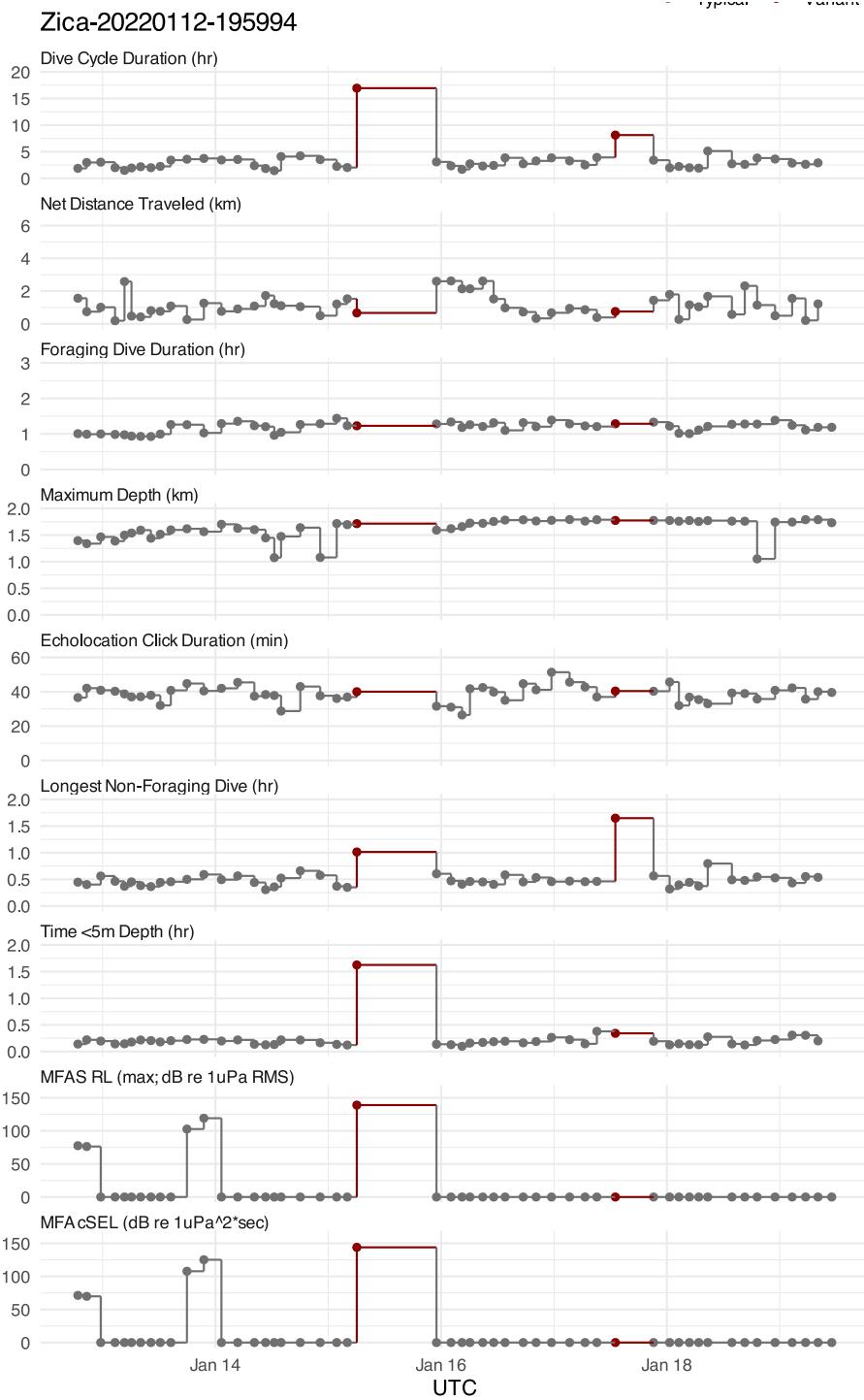


Figure S 24: HHMM input data streams for tag Zica-20220112-195994 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

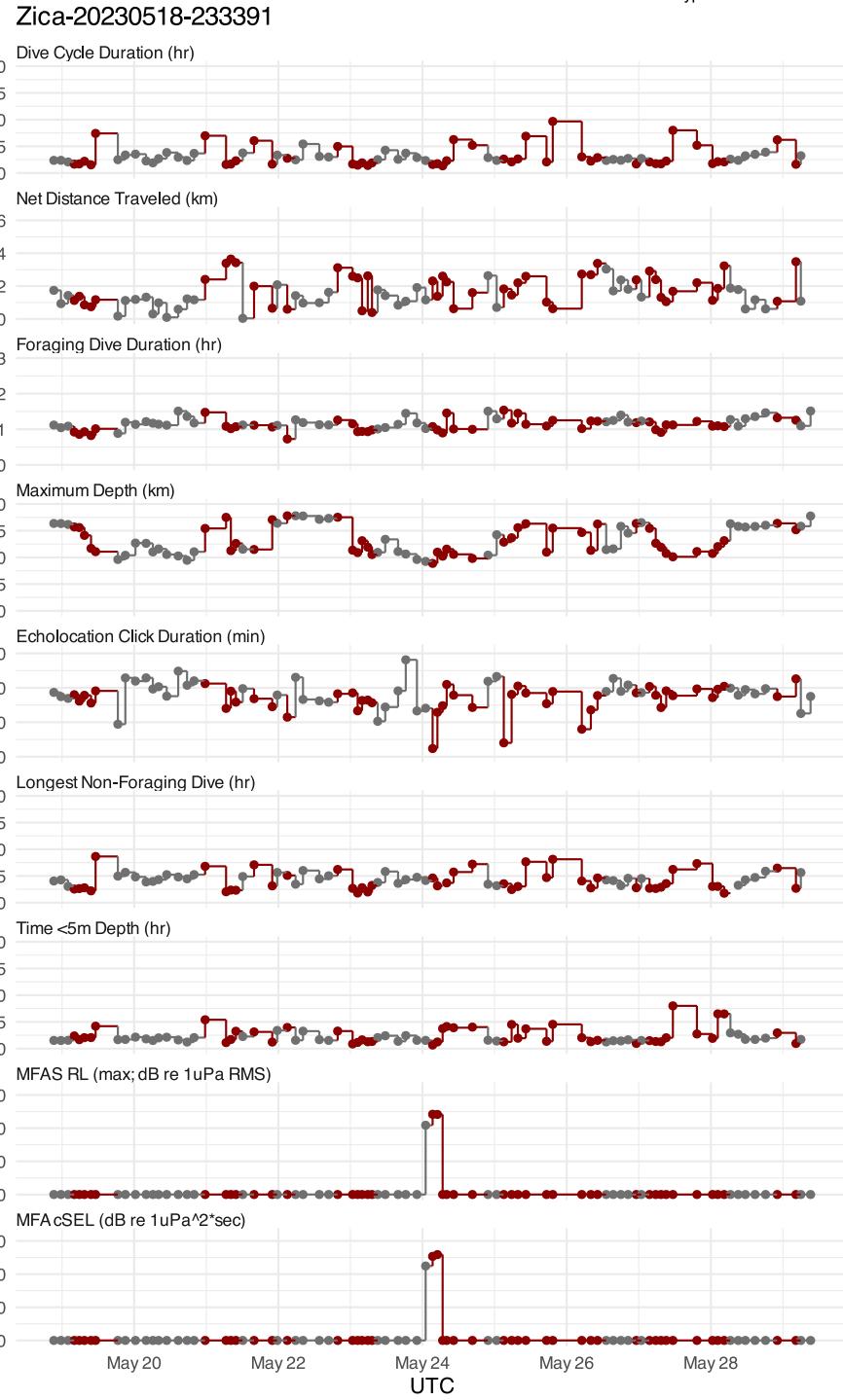


Figure S 25: HHMM input data streams for tag Zica-20230518-233391 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

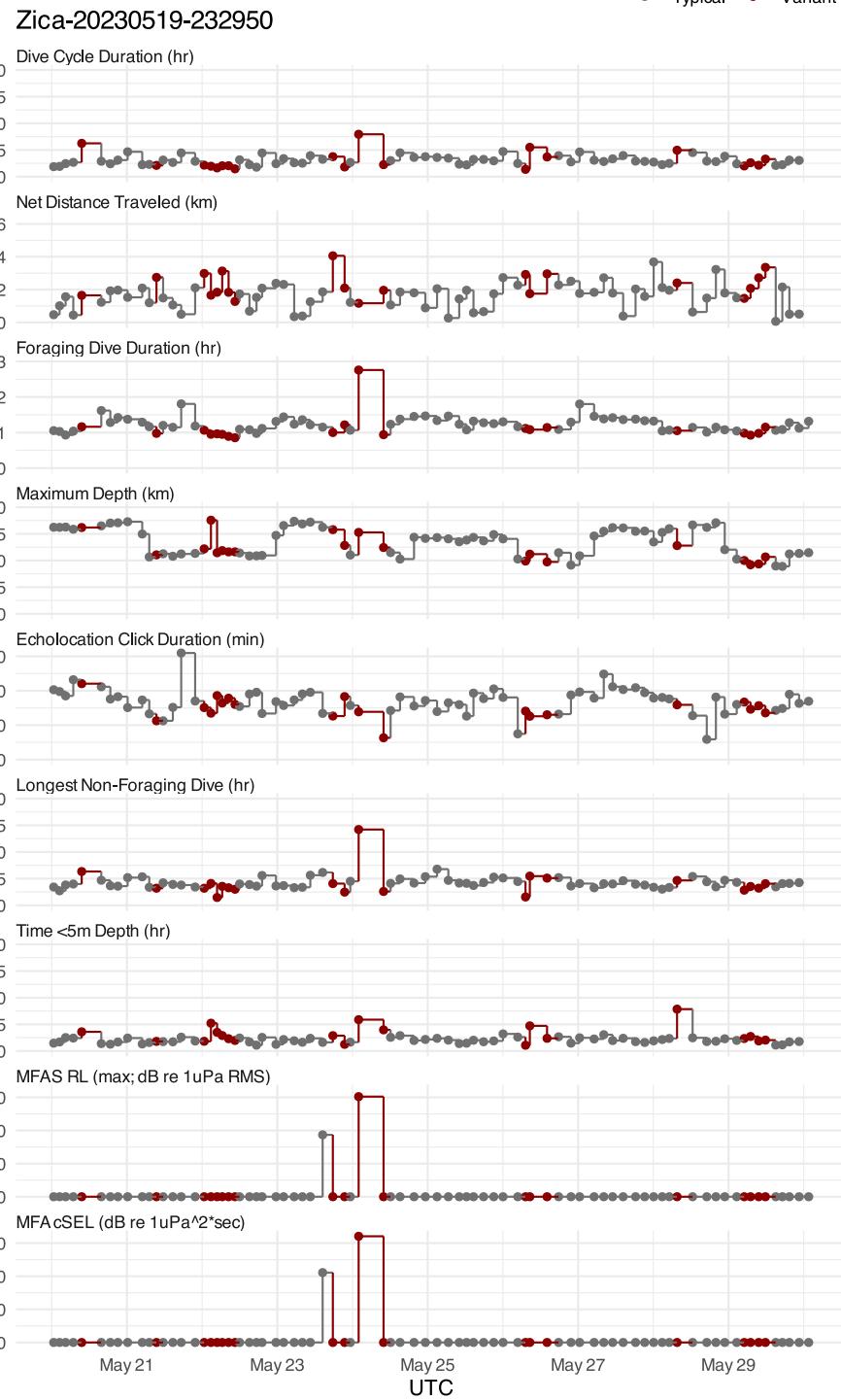


Figure S 26: HHMM input data streams for tag Zica-20230519-232950 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

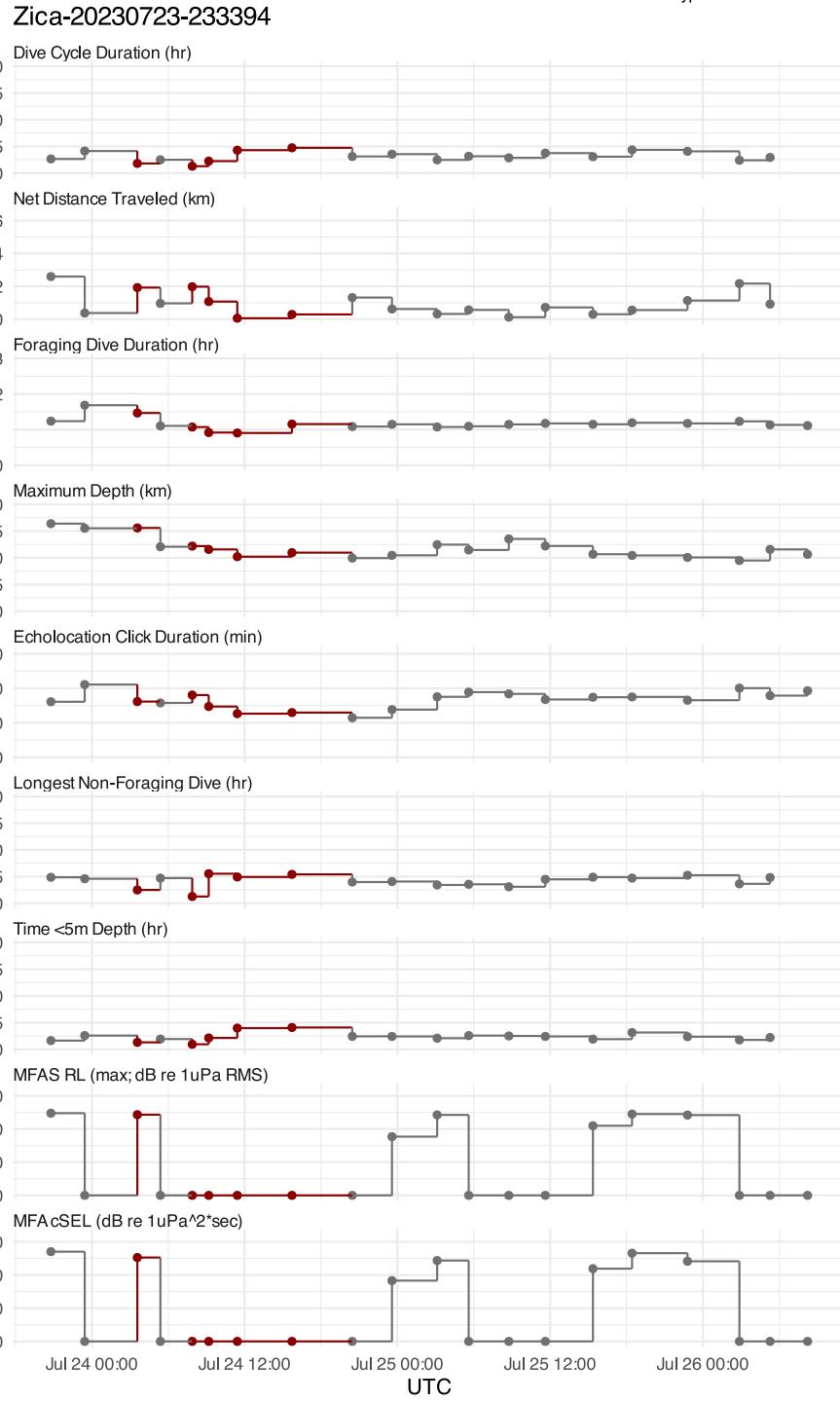


Figure S 27: HHMM input data streams for tag Zica-20230723-233394 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

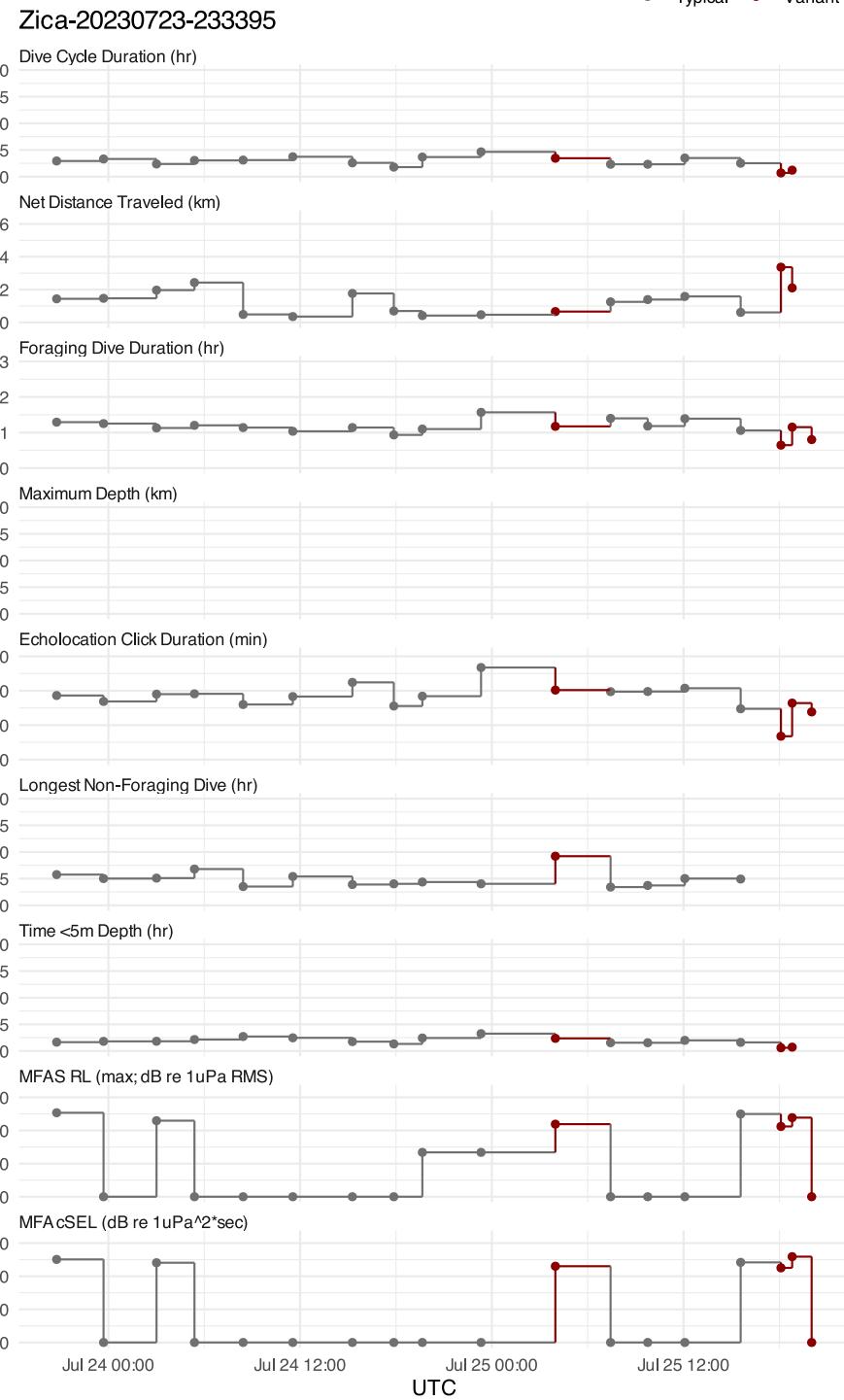


Figure S 28: HHMM input data streams for tag Zica-20230723-233395 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

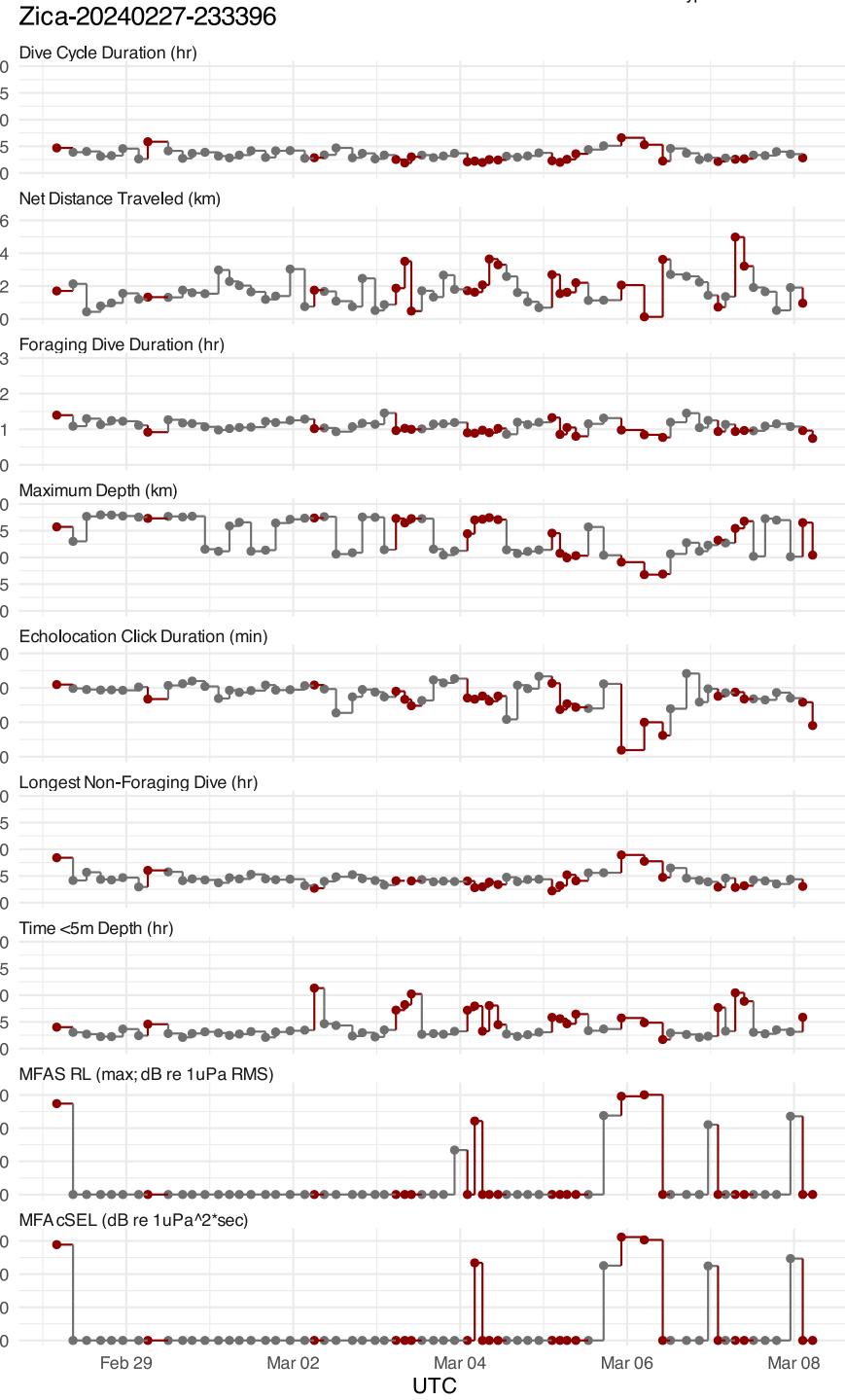


Figure S 29: HHMM input data streams for tag Zica-20240227-233396 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

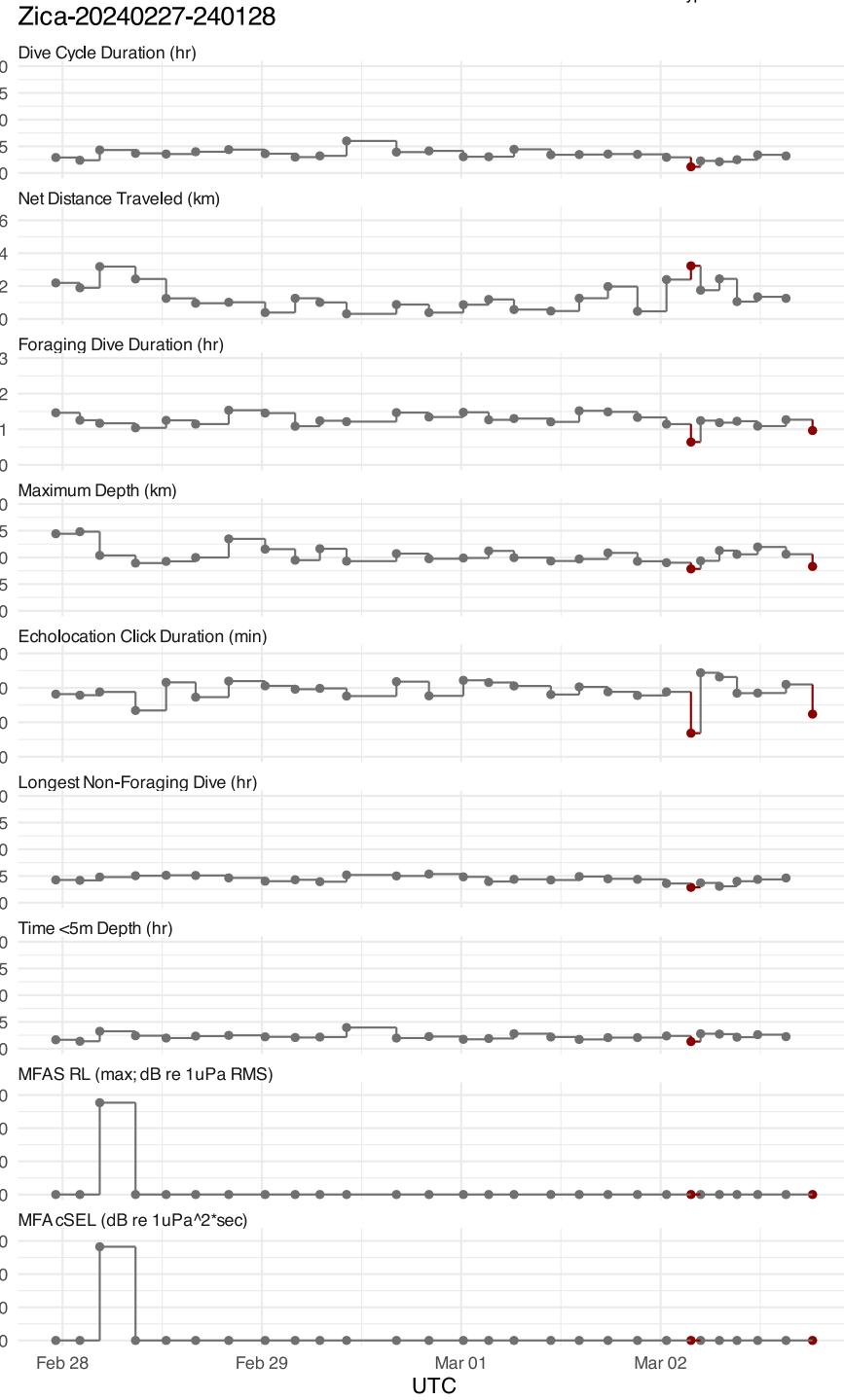


Figure S 30: HHMM input data streams for tag Zica-20240227-240128 at the dive-cycle timescale, with decoded states and MFAS exposure levels.

## Variant Timecourse

We can also consider dive-cycle characteristics of *variant dive cycles* as a function of dive-cycle number *within the sequence of several variant dive cycles*. This could help investigate the question of whether there might be differences between “initial” and “later” variant behavior.

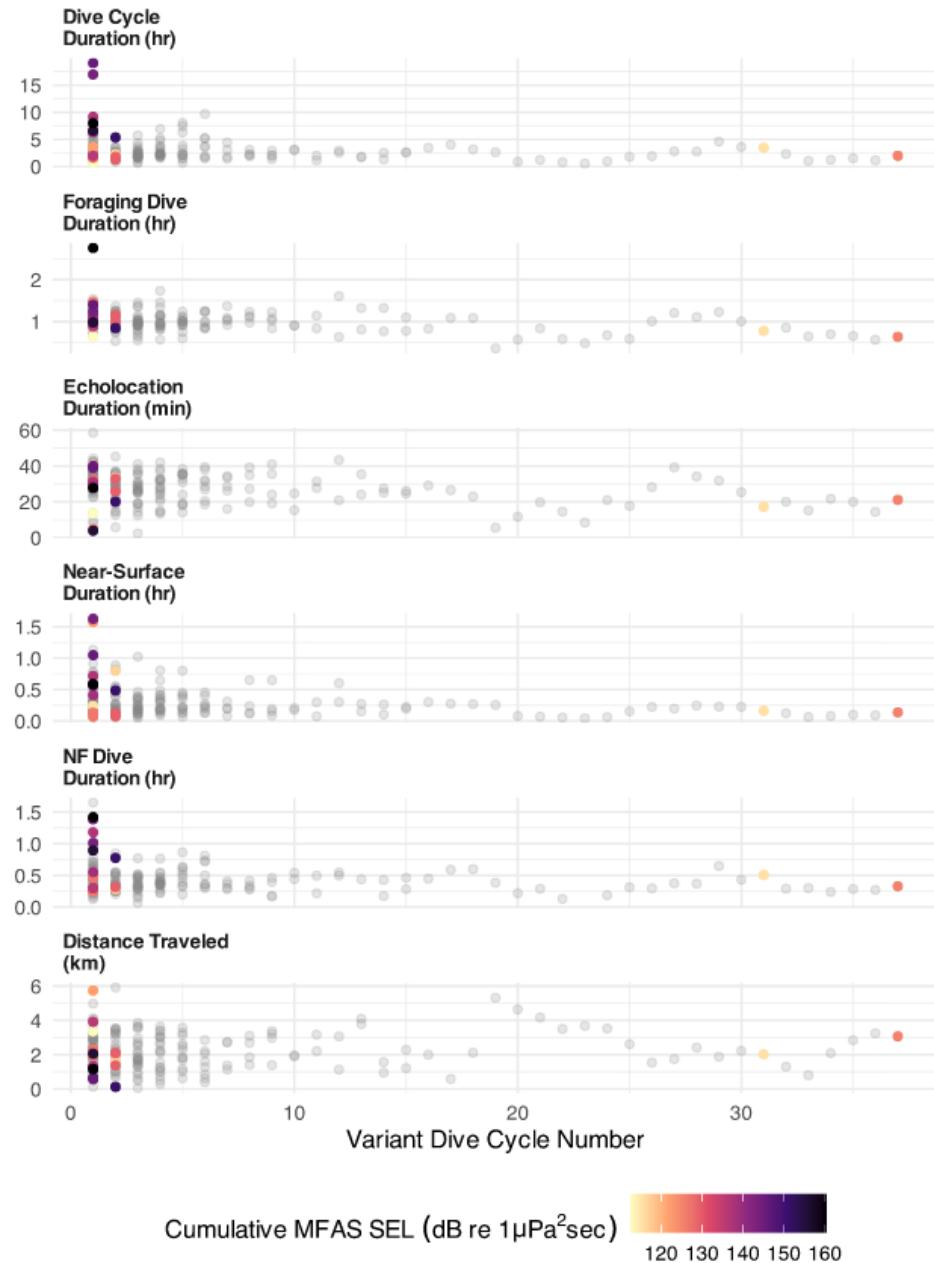


Figure S 31: Dive-cycle characteristics of variant dive cycles as a function of dive-cycle number, within the sequence of several variant dive cycles.

## Depth Distribution of 5-minute States

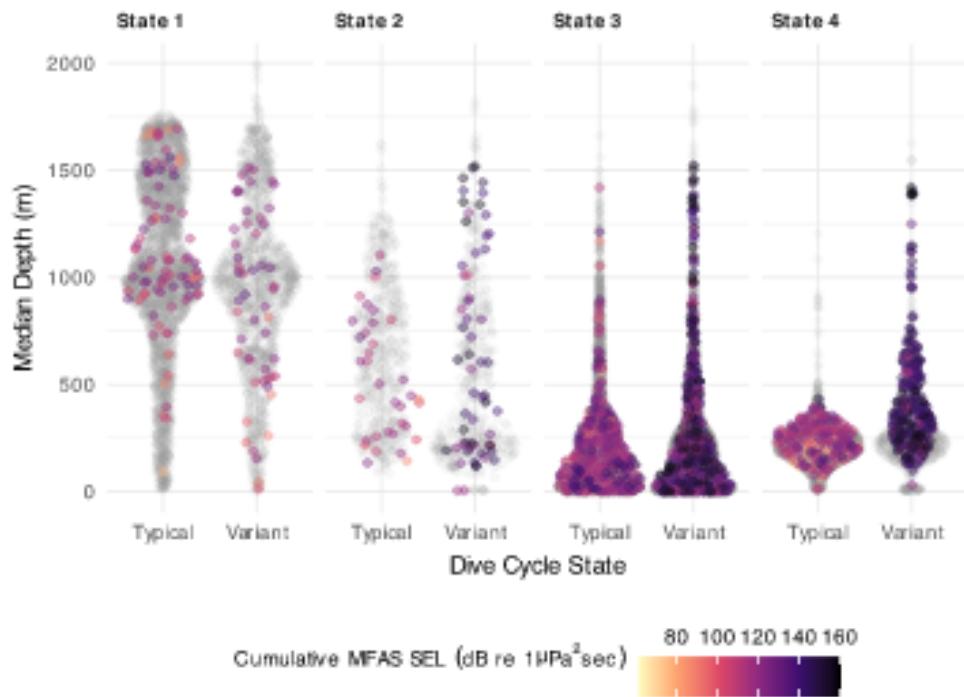


Figure S 32: Depth distribution of 5-minute intervals, by dive-cycle and 5-minute state. Color indicates MFAS cSEL.

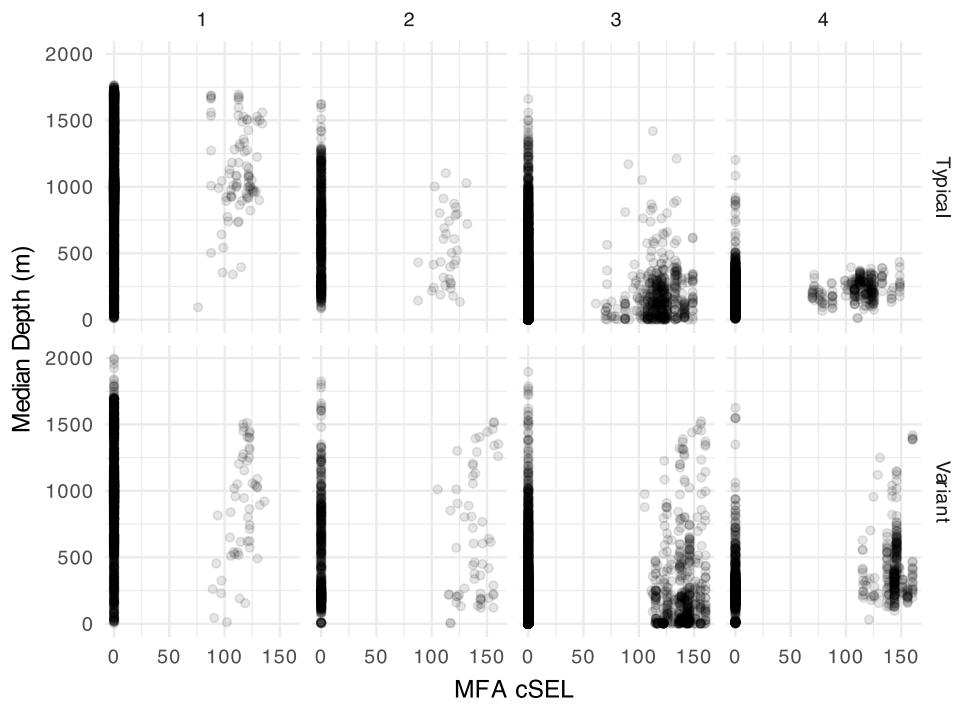


Figure S 33: Depth as a function of MFAS cSEL for 5-minute intervals, by dive-cycle and 5-minute state.

## HHMM Model Validation & Interpretation

### Stationary Distributions

Based on the transition probability matrices, we can compute stationary distributions based on the model, which present the proportion of “time” whales would be expected to spend in each state in the long run. (“Time” because it’s the proportion of time-steps, which for the coarse dive-cycle states is not exactly the same as the duration of dive cycles.)

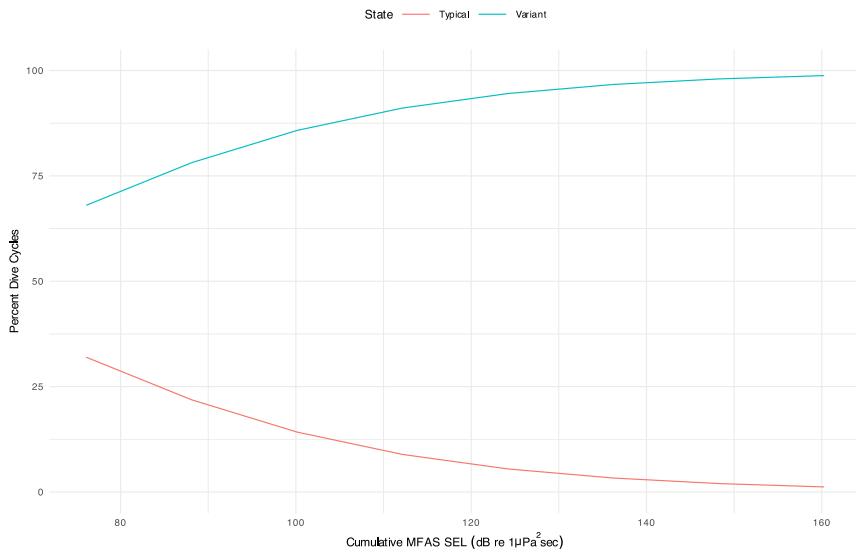


Figure S 34: Stationary state distribution at the dive-cycle scale. The values show the expected proportion of dive cycles spent in each state if the MFAS exposure level was perpetually at a certain value.

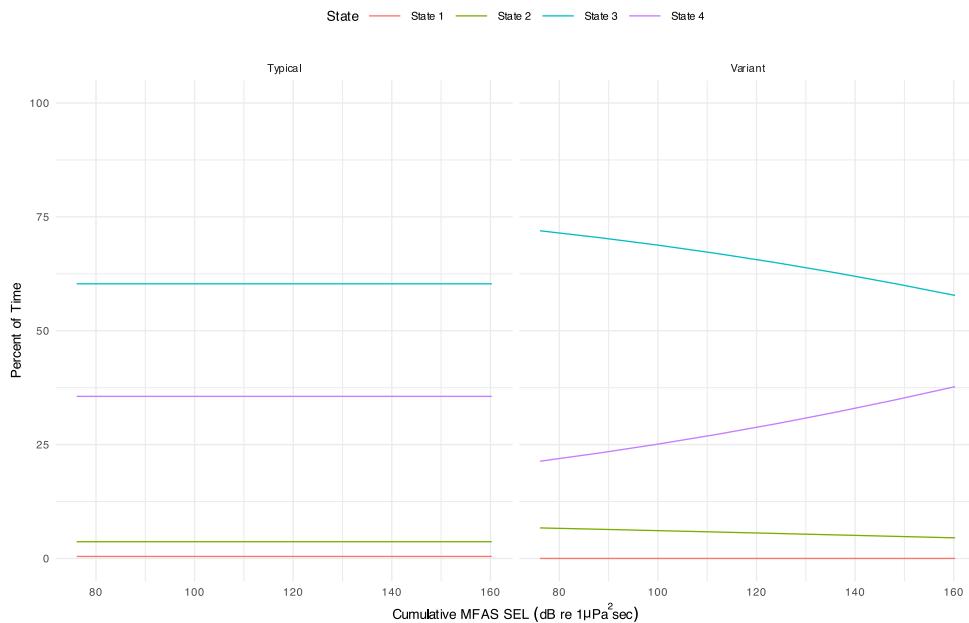


Figure S 35: Stationary state distribution at the dive-cycle scale. The values show the expected proportion of dive cycles spent in each state if the MFAS exposure level was perpetually at a certain value.

## Lag plots

These plots may sometimes help verify the number of states in the data, as discussed in Lawler *et al.* 2019 and Sidrow *et al.* 2022

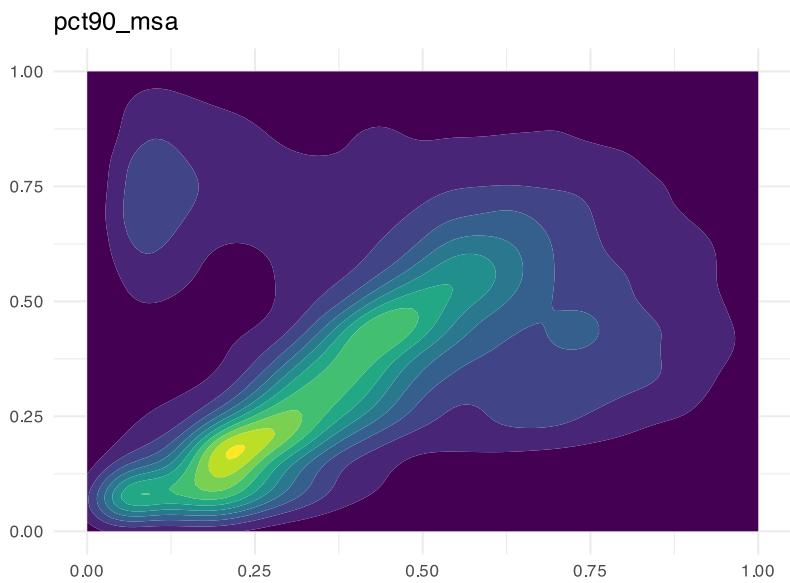


Figure S 36: Lag plot for 90th percentile of MSA.

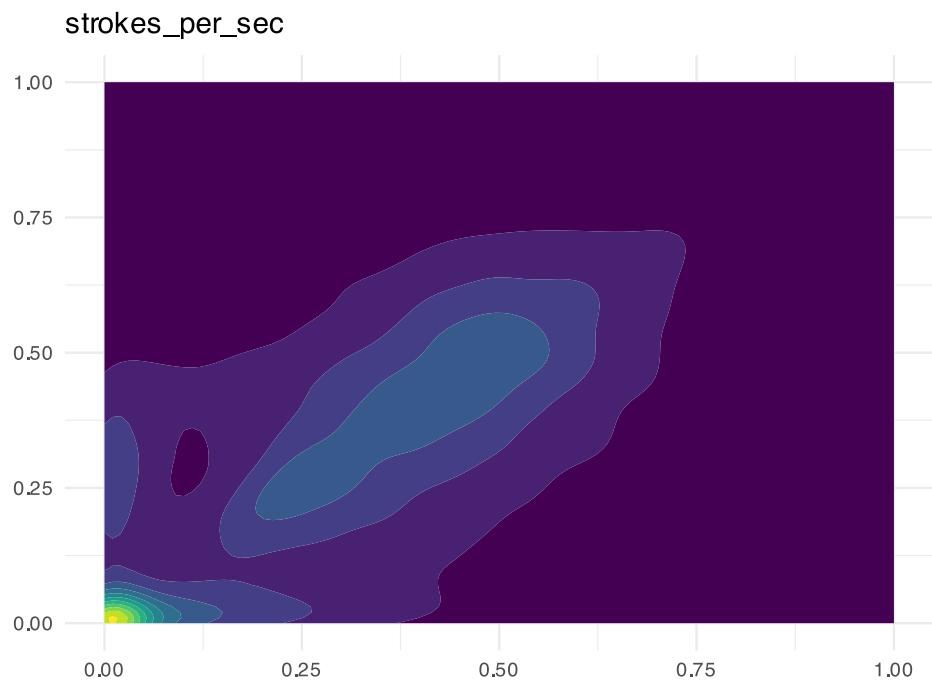


Figure S 37: Lag plot for fluke stroke rate.

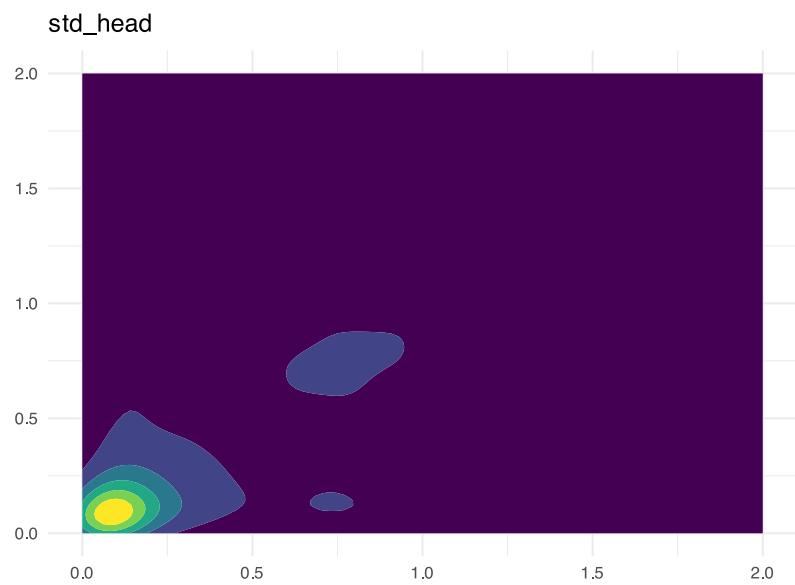


Figure S 38: Lag plot for circular standard deviation of heading.

### Model Pseudoresiduals

Computing pseudo-residuals...

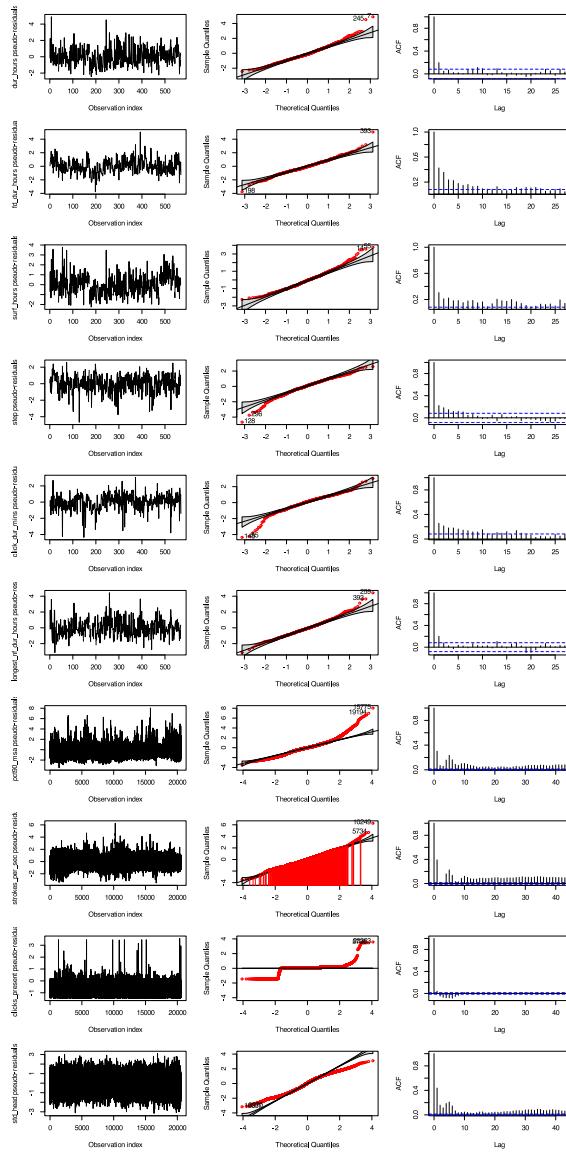


Figure S 39: HHMM pseudo-residuals.

## Likelihood Weighting Simulation Results

### Case 1: True Model Includes MFAS Effect

#### AIC and likelihood results

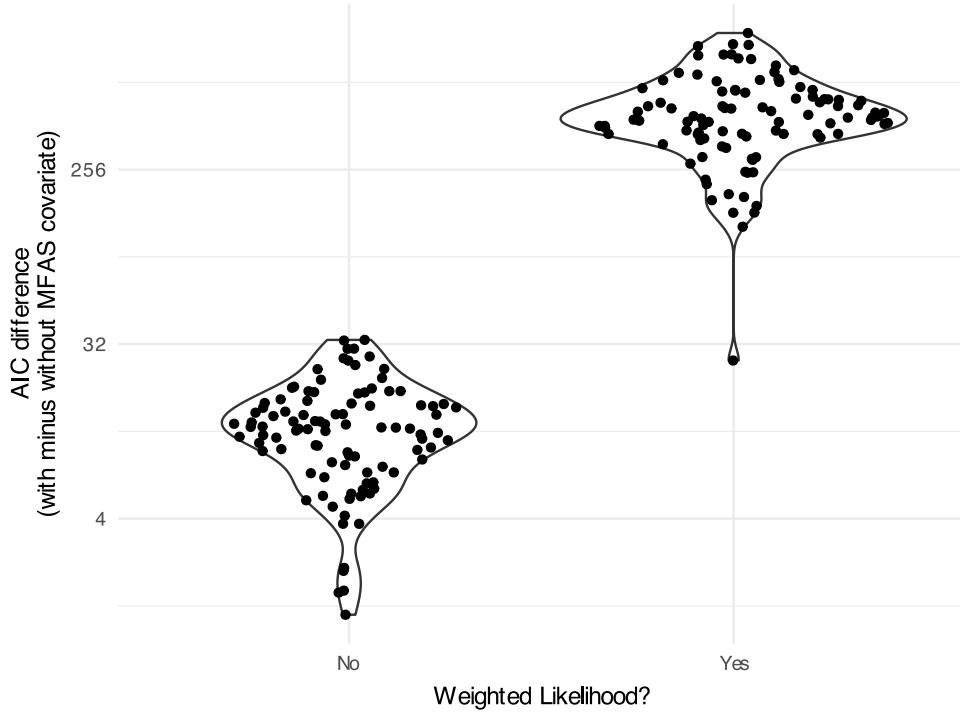


Figure S 40: By what margin would model selection using AIC select the true model (with MFAS effect), with and without duration-weighting applied to the likelihood?

Table S 7: Proportion of simulations where the difference in AIC (model with MFAS minus model without) exceeded 6, when the true model was one with MFAS effect.

Weighting?	Proportion dAIC > 6
No	0.81
Yes	1.00

#### Confidence Interval Coverage

Table S 8: Confidence interval coverage in simulations, for simulations in which the true model included an effect of MFAS on the transition rates. “T->V” is the probability of transition from Typical to Variant state, and “V->T” is Variant to Typical.

Model Name	N Simulations	CI Coverage (%; P(T->V))	CI Coverage (%; P(V->T))	Mean Absolute Error (%; P(T->V))	Mean Absolute Error (%; P(V->T))
rl_coarse	101	96.0	43.10	30.6	290
rl_coarse_wt	101	26.7	8.54	32.1	421

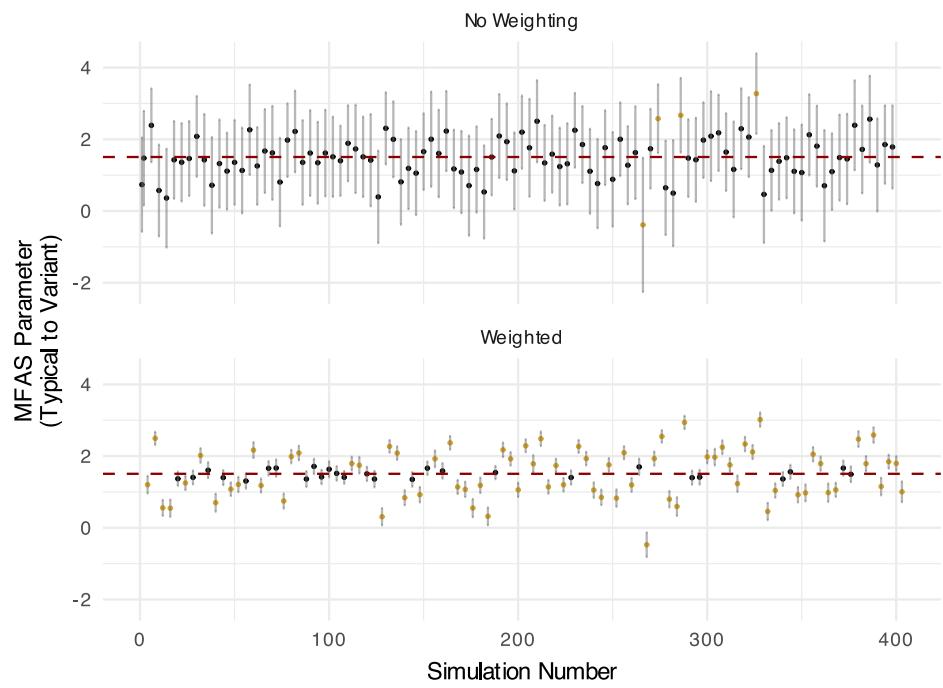


Figure S 41: Parameter estimates and 95% confidence intervals for the parameter measuring the effect of MFAS on transition from Typical to Variant state. Dotted horizontal line shown the true value of the parameter.

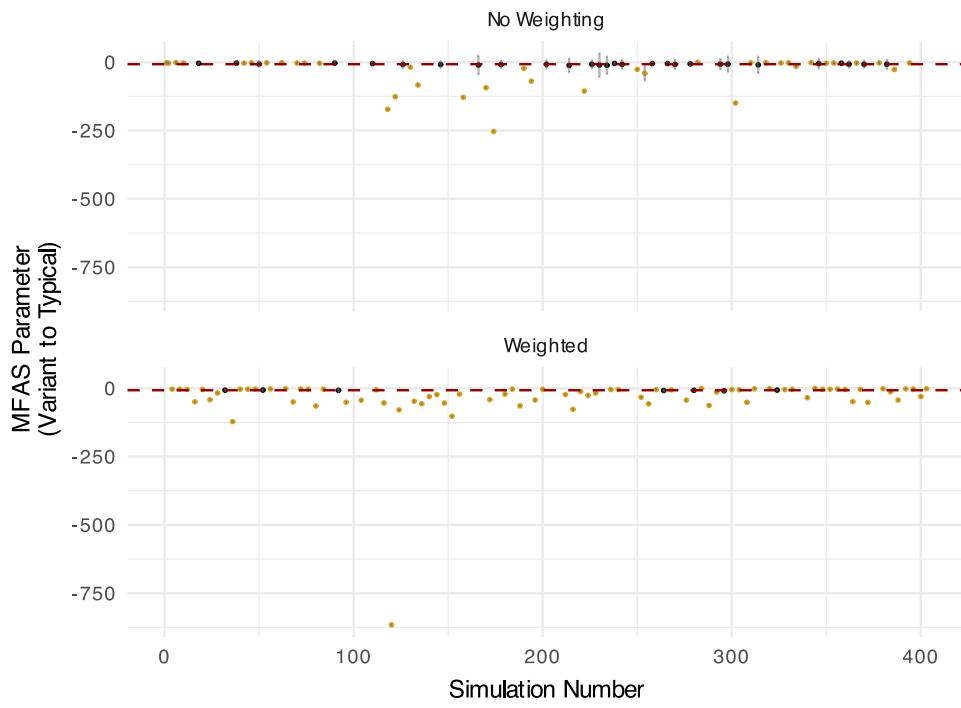


Figure S 42: Parameter estimates and 95% confidence intervals for the parameter measuring the effect of MFAS on transition from Variant to Typical state (note, this one is not estimated well because of the small size of the dataset). Dotted horizontal line shown the true value of the parameter.

### Power

Based on CIs, how often would we conclude there IS an MFAS effect (when there really is)?

Table S 9: Power to detect MFAS effect when it is really present.

Model Name	Power (%), P(T->V)	Power (%), P(V->T)
rl_coarse	75.2	32.3
rl_coarse_wt	99.0	100.0

## Case 2: True Model Excludes MFAS Effect

### AIC and likelihood results

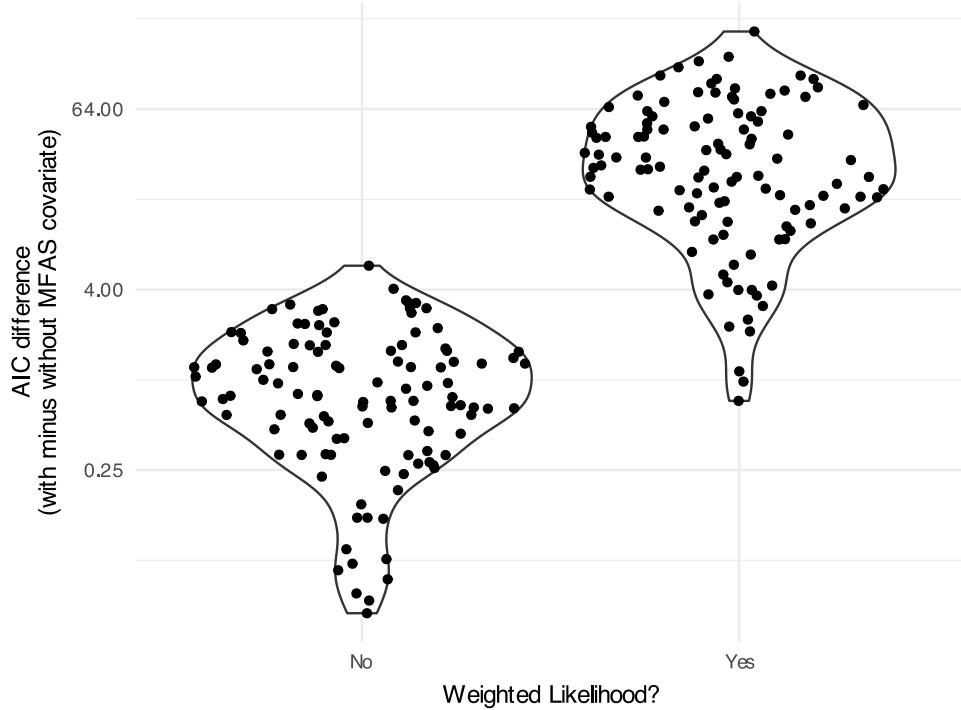


Figure S 43: By what margin would model selection using AIC select the true model (*without* MFAS effect – so a small AIC difference would be hoped for), with and without duration-weighting applied to the likelihood?

Table S 10: Proportion of simulations where the difference in AIC (model with MFAS minus model without) exceeded 6, when the true model was one *without* MFAS effect.

Weighting?	Proportion dAIC > 6
No	0.008849558
Yes	0.882882883

### Confidence Interval Coverage

Table S 11: Confidence interval coverage in simulations, for simulations in which the true model *did not include* an effect of MFAS on the transition rates. “T->V” is the probability of transition from Typical to Variant state, and “V->T” is Variant to Typical.

Model Name	N Simulations	CI Coverage (%; P(T->V))	CI Coverage (%; P(V->T))
rl_coarse	113	97.3	96.4
rl_coarse_wt	112	25.9	19.6