Legend:

Table S1. Sampling dates for data included in analyses

Fig. S1. Demonstration of the effect of a "fish bump" and the subsampling methodology

Audio File S1. Toadfish boatwhistle

Audio File S2. Unidentified knocks

Audio File S3. Toadfish and unidentified knock choruses

Audio File S4. Unidentified creaking

Audio File S5. Unidentified creaking chorus

Audio File S6. Unidentified growl

Audio File S7. Unidentified growl chorus

Table S1. Sampling dates for data included in analyses. The gap in data used in January is due to a sampling error that resulted in skipped files and an incomplete daily timeseries. Data used for each deployment were held constant across all sites to ensure differences detected were not due to different sampling dates. The Aeolus was only sampled for the final three deployments after it was selected as a contingency site due to strong currents at the initial artificial reef.

	Nov 2015	**Jan 2016**	**Apr 2016**	**Jun 2016**	**Aug 2016**
210 Rock	11/03 - 11/09	01/15; 01/18-01/22	04/12 - 04/19	06/10 - 06/16	08/17 - 08/22
West Rock	11/03 - 11/09	01/15; 01/18-01/22	04/12 - 04/19	06/10 - 06/16	08/17 - 08/22
Spar	11/03 - 11/09	01/15; 01/18-01/22	04/12 - 04/19	06/10 - 06/16	08/17 - 08/22
Aeolus	--	--	04/12 - 04/19	06/10 - 06/16	08/17 - 08/22

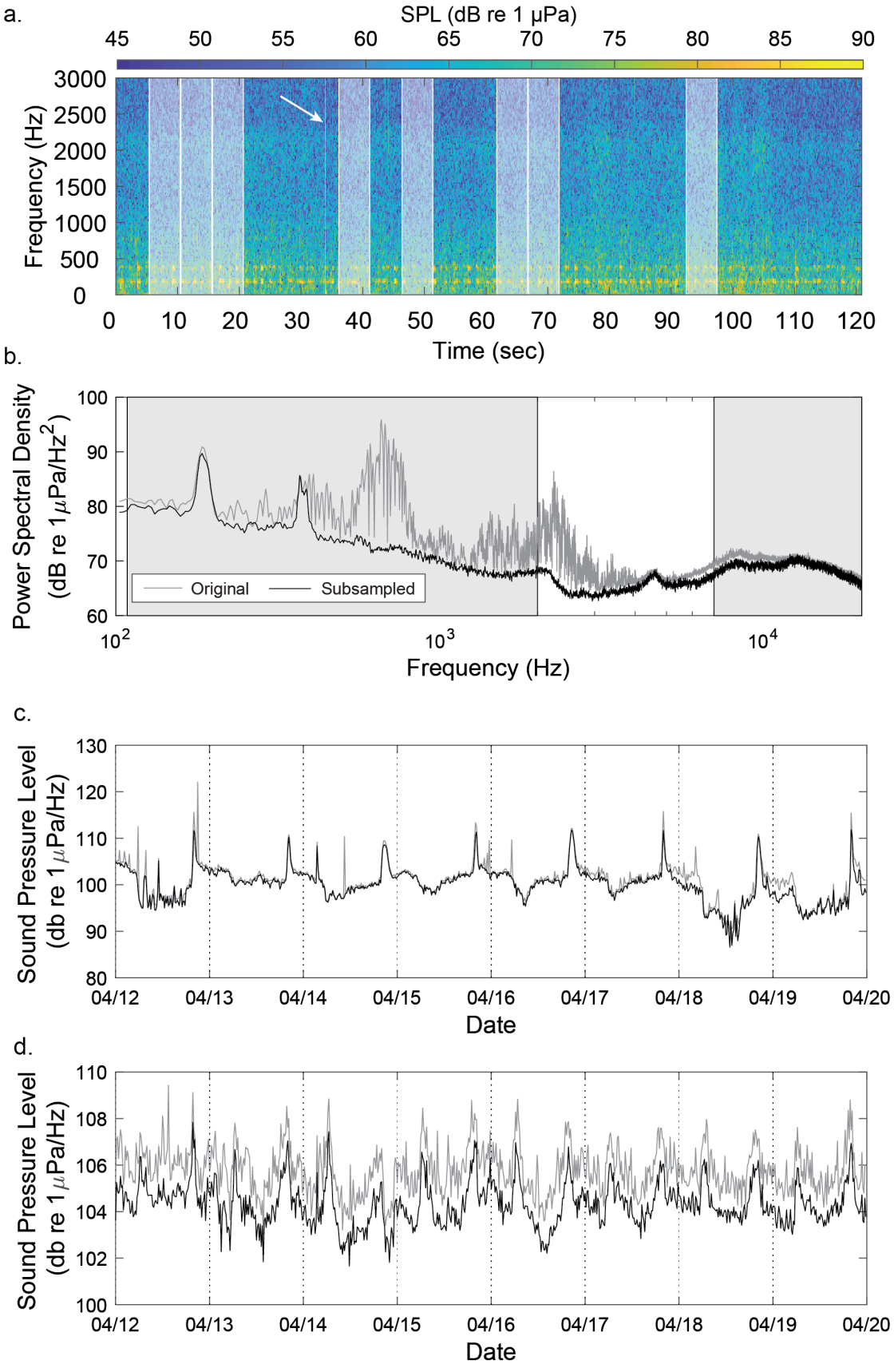
a.
SPL (dB re 1 µPa)
45 50 55 60 65 70 75 80 85 90
Frequency (Hz)
3000 2500 2000 1500 1000 500 0
0 10 20 30 40 50 60 70 80 90 100 110 120
Time (sec)
b.
Power Spectral Density (dB re 1 µPa/Hz²)
100 90 80 70 60
Original
Subsampled
10² 10³ 10⁴
Frequency (Hz)
c.
Sound Pressure Level (db re 1 µPa/Hz)
130 120 110 100 90 80
04/12 04/13 04/14 04/15 04/16 04/17 04/18 04/19 04/20
Date
d.
Sound Pressure Level (db re 1 µPa/Hz)
110 108 106 104 102 100
04/12 04/13 04/14 04/15 04/16 04/17 04/18 04/19 04/20
Date

Fig. S1. Demonstration of the effect of a "fish bump" on the average power spectral density of a two-minute audio file and the effectiveness of the subsampling methodology to preserve biological signals and temporal patterns. (a) Spectrogram of a representative file recorded on 210 Rock in April 2016. The arrow points to an impulsive signal likely the result of an animal collision with the hydrophone. The shaded boxes indicate the eight quietest, five-second subsamples extracted to remove the effect of the fish bump. (b) Plot of power spectral density demonstrating that the subsampling methodology preserves the toadfish peaks while removing the noise due to the fish bump. The gray shaded boxes indicate the frequencies summarized in each frequency band (c) Time series of low-frequency SPL (0.1 – 2 kHz) for the original (gray) and subsampled (black) data. Spikes in the original data that are removed via subsampling are a result of fish bumps or boat noise. The subsampling methodology preserves the diurnal pattern in SPL while removing variability due to non-biological sounds that complicate ecological interpretation. (d) Time series of high frequency SPL (7 – 20 kHz) for the original (gray) and subsampled (black) data. The subsampling reduces the SPL of each file by an average of 1.5 dB but preserves the diurnal pattern while removing the spikes due to fish bumps.