

SUPPLEMENTAL MATERIALS

**Table S1. He'eia Fishpond *in situ* sampling regime.**

Site	Deployment Period	
	Pre-restoration	Post-restoration
Hihimanu/OM2	01/21/2012-01/28/2012	03/31/2018-04/07/2018
Kaho'okele/OB	5/5/2012	03/10/2018-03/17/2018
Nui/OM1	04/07/2012-04/12/2012	03/31/2018-04/07/2018
Kahoalāhui/TM	05/04/2012-05/05/2012	03/31/2018-04/07/2018
Wai 1/RM3	4/26/2012	04/07/2018-04/15/2018
Wai 2/RM2	4/26/2012-05/01/2012	04/07/2018-04/15/2018

**Table S2. Meteorological conditions pre -and post-restoration flux calculations.**

Mākāhā	Sampling date	Precipitation (cm)		Mean stream discharge over 24 hr. (m <sup>3</sup> /s)	Tide	Wind direction, magnitude (kts)
		daily	Cum., 96 hr.			
Wai 2	4/26/2012	1.30	2.08	0.07	Neap	E, 10
	4/8/2018-04/09/2018	1.65	6.35	0.16	Neap	N, 7
	4/15/2018	1.90	6.35	0.09	Spring	NE, 11
Wai 1	4/26/2012	1.30	2.08	0.07	Neap	E, 10
	4/07/2018-04/08/2018	1.52	7	0.09	Neap	NE, 4
	4/14/2018	1.11	5.71	0.08	Spring	NE, 11
Kahoalahui	5/4/2012	0.28	0.99	0.05	Spring	NE, 12
	3/31/2018	0.64	0.64	0.06	Spring	NE, 5
	4/07/2018-04/08/2018	2.29	6.1	0.08	Neap	NE, 9
Nui	4/9/2012	1.32	2.34	0.07	Spring	NE, 13
	3/31/2018	0.64	0.64	0.06	Spring	NE, 5
	4/07/2018-04/08/2018	2.29	6.1	0.08	Neap	NE, 9
Kaho'okele/ Ocean Break	5/5/2012	0.3	1.29	0.05	Spring	NE, 11
	3/15/2018	0.00	6.35	0.07	Spring	NE, 5
	3/08/2018-03/09/2018	0.50	0.5	0.11	Neap	NE, 13
Hihimanu	1/22/2012	0.05	0.1	0.04	Spring	NE, 10
	4/1/2018	0.00	0.64	0.06	Spring	NE, 3
	4/07/2018-04/08/2018	2.29	6.1	0.08	Neap	NE, 9

Daily and cumulative rainfall from NOAA's Luluku station (HI15), Ha'ikū Stream discharge from USGS Stream Gauge, tidal and wind data from *Moku o Lo'e*

**Table S3: Discrete sampling station pre -and post-restoration in He'eia Fishpond.**

Station	Latitude	Longitude	Pre-restoration sampling			Post-restoration sampling		
			8/28/2014	9/11/2014	10/23/2014	2/18/2017	4/2/2017	6/2/2017
M01: Wai 2		Table 1	X	X	X	X	X	X
M02: Wai 1		Table 1	X	X	X	X	X	X
M03: Kahoalāhui		Table 1	X	X	X	X	X	X
M04: Nui		Table 1	X	X	X	X	X	X
M05: OB/Kaho'okele		Table 1	X	X	X	X	X	X
M06: Hihimanu		Table 1	X	X	X	X	X	X
E01: River Endmember	21.43389	-157.80528				X	X	X
E02: Ocean Endmember	21.44121	-157.80616				X	X	X
P01	21.43272	-157.80746	X	X	X			
P02	21.43470	-157.80862	X	X	X			
P03	21.43743	-157.81073	X	X	X			
P04	21.43871	-157.81001	X	X	X			
P05	21.43703	-157.80923	X	X	X			
P06	21.43573	-157.80754	X	X	X			
P07	21.43992	-157.80829	X	X	X			
P08	21.43769	-157.80676	X	X	X			
P09	21.43579	-157.80563	X	X	X			
P10	21.43353	-157.80646	X	X	X			
L01	21.43257	-157.80704				X	X	X
L02	21.43527	-157.80803				X	X	X
L03	21.43665	-157.80833				X	X	X
L04	21.43690	-157.80736				X	X	X
L05	21.43898	-157.80939				X	X	X
L06	21.43705	-157.81026				X	X	X
L07	21.43733	-157.81085				X	X	X
L08	21.43773	-157.80979				X	X	X
L09	21.43695	-157.80979				X	X	X
L10	21.43609	-157.80661				X	X	X
L11	21.43792	-157.80782				X	X	X

**Table S4. YSI and discrete sampling meteorological conditions pre -and post restoration.**

Precipitation from NOAA's Luluku station (HI15), Stream discharge from Ha'ikū USGS Stream Gage, tidal and wind data from *Moku o Lo'e*

Date	Precipitation (cm)		Mean stream discharge over 24 hr (m <sup>3</sup> /s)	Tide	Wind direction, magnitude (kt)
	Daily	Cum. 96 hr			
8/28/2014	0.61	37.80	0.06	Neap Low, Slack	NE, 4
9/11/2014	0.00	3.35	0.05	Intermediate, Slack	E, 4
2/18/2017	0.46	38.10	0.07	Neap Low, Slack	NNE, 3
4/2/2017	0.00	1.54	0.06	Neap Low, Dropping	E, 6
6/2/2017	0.91	45.72	n/a	Neap Low, Dropping	E, 6

**Table S5. Kuapā restoration by Paepae o He'eia over the course of this study**

Fiscal year	Length of kuapā restored (m)
2013-2014	149.35
2014-2015*	0.00
2015-2016	128.38
2016-2017	152.40
2017-2018	179.22

\*Pani ka puka

**Supplemental Figure 1. Positive amplification of 16S rDNA gene from cattle egret feces DNA samples (BF1 and BF2). Normalization to GFC standard (uncultured *Catelliboccus* sp. 16S rRNA gene, partial sequence, Genbank accession number JN084062).**

