

Supplement

Table S1. Table showing the dominant habitat and number of fin clip samples taken from each sample site.

Sample Site	Dominant Habitat	n
Guerrero Negro	Soft Bottom	31
El Datil	Soft Bottom	6
Laguna San Ignacio	Soft Bottom	5
La Jolla	Rocky Reef/Kelp Forest	5
Bahia Tortugas	Rocky Reef/Kelp Forest	4
San Juanico	Rocky Reef/Soft Bottom	3
Ajusco Erendira	Rocky Reef/Kelp Forest	2
Punta Abreojos	Rocky Reef/Kelp Forest	2
Bahia De Los Angeles	Rocky Reef/Soft Bottom	1
Carlsbad	Rocky Reef/Soft Bottom	1
El Rosario	Rocky Reef/Kelp Forest	1
Isla Natividad	Rocky Reef/Kelp Forest	1
Solana Beach	Rocky Reef/Soft Bottom	1

Table S2. Table detailing primary producer isotope values derived from the literature.

	Sample Site	Mean $\delta^{13}\text{C}$	Mean $\delta^{15}\text{N}$	Source
Kelp				
<i>Macrocystis pyrifera</i> (drift)	Santa Catalina Island, California	-15.33	10.25	Gabara (2020)
<i>Macrocystis pyrifera</i> (fresh)	Santa Catalina Island, California	-16.49	10.36	Gabara (2020)
<i>Macrocystis pyrifera</i>	Santa Cruz Island, California	-13.48	7.27	Hamilton et al. (2011)
<i>Macrocystis pyrifera</i>	Bahia Tortugas, Baja California Sur	-15.2	10.9	Pinon-Gimate et al. (2016)
<i>Macrocystis pyrifera</i>	Bahia Tortugas, Baja California Sur	-15.9	10.4	Vega-Garcia et al. (2015)
<i>Macrocystis pyrifera</i>	La Bocana, Baja California Sur	-22.1	11.6	Vega-Garcia et al. (2015)
<i>Macrocystis pyrifera</i> (new growth)	Arroyo Quemado, California	-12.2	9.7	Page et al. (2008)
<i>Macrocystis pyrifera</i> (new growth)	Naples, California	-13.00	9.5	Page et al. (2008)
<i>Macrocystis pyrifera</i> (new growth)	Carpinteria, California	-12.4	9.7	Page et al. (2008)
<i>Macrocystis pyrifera</i> (old growth)	Arroyo Quemado, California	-12.7	8.6	Page et al. (2008)
<i>Macrocystis pyrifera</i> (old growth)	Naples, California	-13.8	8.5	Page et al. (2008)
<i>Macrocystis pyrifera</i> (old growth)	Carpinteria, California	-13.2	9.7	Page et al. (2008)
Phytoplankton				
POM	Santa Catalina Island, California	-23.02	7.39	Gabara (2020)
POM	Santa Cruz Island, California	-20.11	5.49	Hamilton et al. (2011)
POM	Santa Barbara Channel, California	-21	6.8	Page et al. (2008)
POM	Southern California Bight, California	-22.7	8	Kurle and McWhorter (2017)

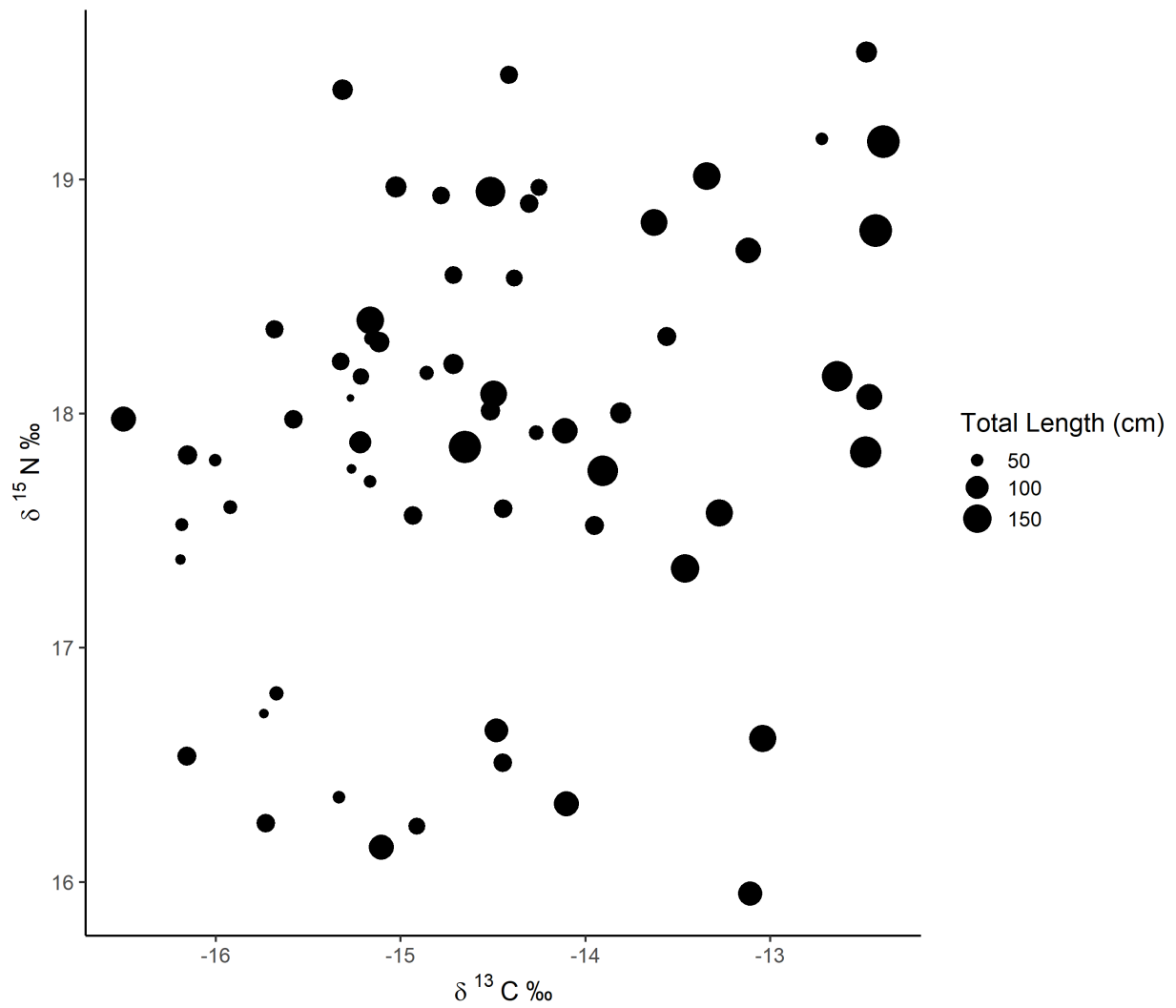


Fig. S1. $\delta^{13}\text{C}$ - $\delta^{15}\text{N}$ biplot for all bulk stable isotope samples. Each point represents a fin clip sample from an individual Giant Sea Bass. The size of the points denotes the total length of the fish the sample is derived from.

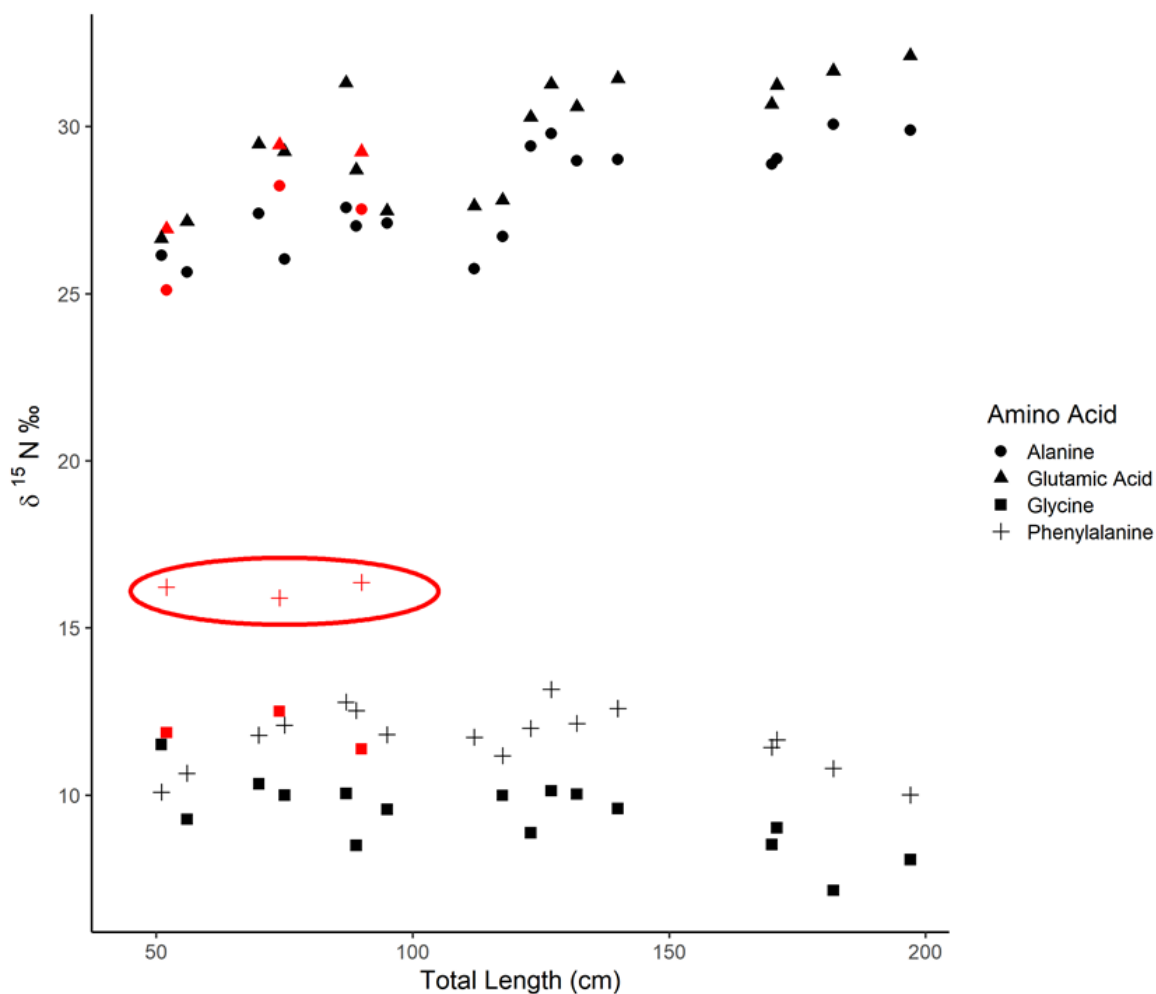


Fig. S2. While we ran CSIA-AA on 20 samples, we only calculated the trophic position for 16 samples. Three samples had unreasonable phenylalanine results which indicated that there was an error during sample processing so they were removed from all data analysis. There was one additional sample we were unable to determine the glycine value for, so it was not included in the trophic position estimates either. This figure shows the unreasonable phenylalanine samples (circled). The other AA values associated with those samples are also shown in red.