

SAA Project Update March 1, 2023

During the previous reporting periods we designed and completed a feeding study using California yellowtail and five different diets containing various types of soybean meal. In this reporting period, we tested for proximate composition and mineral analysis. The diets were similar in composition and there was no significant differences in whole fish tissues at the end of the trial.

**Table 1.** Proximate analysis of whole body tissue of California yellowtail after an 8 week trial. PRE is protein retention.

Treatments	Initial Sample	Diet 1	Diet 2	Diet 3	Diet 4	Diet 5	Diet 6
Moisture (%)	76.6	72.7 ± 0.7	71.3 ± 0.7	72.3 ± 0.7	71.8 ± 0.8	72.7 ± 0.3	72.7 ± 1.2
Dry (%)	23.4	27.3 ± 0.7	28.7 ± 0.7	27.7 ± 0.7	28.2 ± 0.8	27.3 ± 0.3	27.3 ± 1.2
Protein (%)	15.2	19.7 ± 0.7	19.4 ± 0.6	20.3 ± 0.3	19.5 ± 0.2	19.2 ± 0.3	19.7 ± 0.7
Fat (%)	3.48	4.8 ± 0.4	4.7 ± 1.1	5.6 ± 0.4	5.1 ± 0.6	4.9 ± 0.5	5.0 ± 1.0
Ash (%)	3.15	2.9 ± 0.7	3.4 ± 0.5	2.9 ± 0.4	3.1 ± 0.2	2.7 ± 0.4	2.8 ± 0.5
PRE (%)		0.34 ± 0.01	0.33 ± 0.01	0.34 ± 0.01	0.35 ± 0.01	0.35 ± 0.02	0.35 ± 0.02

**Table 2.** Mineral analysis of whole body tissue of California yellowtail after an 8 week trial. PHRE is phosphorus retention.

Treatments	Initial Sample	Diet 1	Diet 2	Diet 3	Diet 4	Diet 5	Diet 6
Sulfur (%)	0.24	0.23	0.23	0.23	0.23	0.23	0.24
Phosphorus (%)	0.58	0.57 ± 0.04	0.62 ± 0.11	0.54 ± 0.03	0.57 ± 0.03	0.57 ± 0.04	0.53 ± 0.05
PHRE(%)		0.29 ± 0.02	0.33 ± 0.07	0.26 ± 0.02	0.32 ± 0.03	0.32 ± 0.02	0.30 ± 0.04
Potassium (%)	0.36	0.35 ± 0.01	0.35	0.35 ± 0.01	0.35	0.35 ± 0.01	0.36
Magnesium (%)	0.05	0.04	0.04	0.04	0.04	0.04	0.04
Calcium (%)	0.8	0.63 ± 0.08	0.75 ± 0.21	0.58 ± 0.07	0.64 ± 0.06	0.64 ± 0.09	0.55 ± 0.11
Sodium (%)	0.25	0.13 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.12 ± 0.01	0.13 ± 0.01	0.13 ± 0.01
Iron (ppm)	13.4	13.97 ± 0.73	14.05 ± 0.56	14.05 ± 0.75	14.07 ± 0.79	15.97 ± 2.29	16.15 ± 2.36
Manganese (ppm)	1.6	0.95 ± 0.67	1.05 ± 0.71	0.55 ± 0.64	1.10 ± 0.08	0.88 ± 0.59	0.60 ± 0.69
Copper (ppm)	0	0.50 ± 0.58	0.00	0.25 ± 0.50	1.0	0.25 ± 0.50	0.25 ± 0.50
Zinc (ppm)	16.4	12.45 ± 1.04	12.88 ± 1.30	14.30 ± 0.67	13.30 ± 1.27	13.45 ± 0.25	12.60 ± 1.85

Results for liver and gut histology, as well as gene expression in the hind gut are pending.