SHELLFISH HEALTH LABORATORY REPORT

Diagnostic

October 26, 2015 **AQ15-101**

Pacific oyster juveniles

Business address:
Taylor Resources
SE 130 Lynch Road
Shelton, WA 98584

Diagnostic submission information:
Sample collection date: various, unspecified
Species/stage examined: ***Crassostrea gigas,*** **Pacific oyster juvenile (seed) stock.**

History and examination: Pacific oyster seed were fixed in formalin seawater and submitted from the Dabob hatchery, and delivered to the laboratory on September 30, 2015. Seed mortality was reported and the seed were submitted for histological examination to provide an assessment of probable cause of losses. Eleven samples were submitted and processed and shown in the table below.

Results: The table below summarizes the sample numbers and histological findings.

				Digestive gland condition (%)					
AquaTechnics accession #	Taylor sample number	Typical shell height (um)	Number Examined	High	Medium	Low	Very Low	% bacterial infections	% invasive protozoa
AQ15-101-1	1	280	25	32%	36%	32%	0%	0%	0%
AQ15-101-2	2	322	25	4%	8%	28%	60%	0%	0%
AQ15-101-3	3	689	25	32%	16%	28%	24%	0%	0%
AQ15-101-4	13	283	25	48%	32%	16%	4%	0%	44%
AQ15-101-5	14	773	25	44%	36%	20%	0%	0%	0%
AQ15-101-6	15	1016	25	36%	20%	20%	24%	0%	0%
AQ15-101-7	16	681	25	32%	28%	20%	20%	0%	0%
AQ15-101-8	26	445	25	36%	36%	28%	0%	20%	56%
AQ15-101-9	27	1393	25	12%	40%	40%	8%	0%	0%
AQ15-101-10	29	755	25	88%	12%	0%	0%	0%	0%
AQ15-101-11	32	753	25	20%	24%	52%	4%	8%	0%

Key to digestive gland condition: The height of the digestive gland epithelium is rated as (1) high (indicating normal active metabolism and ingestion), (2) medium (indicating a condition at the lower end of the normal range and an animal at risk from insufficient nutrition), (3) low (a pathological condition indicating insufficient nutrition or a toxic dietary effect, but a recoverable condition) and (4) very low (a distinctly pathological condition indicating insufficient nutritional intake or a toxic dietary effect, that may be unrecoverable in some cases).

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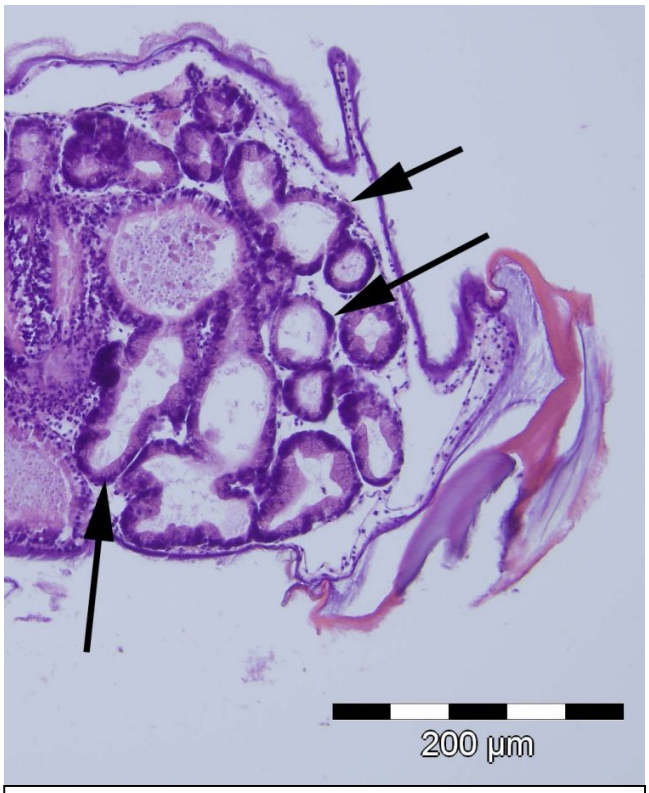
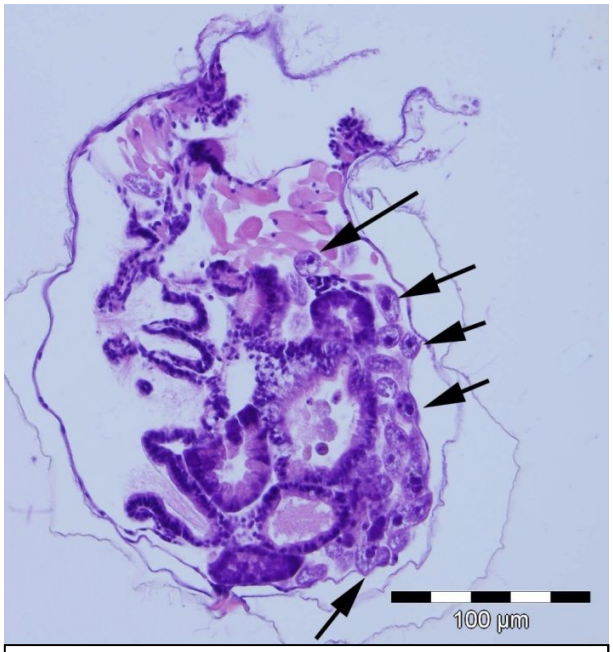
Comments: Digestive gland condition, as index of feeding: The digestive gland condition was generally lower than ideal, which is not unusual in hatchery reared seed, but indicates a means to improve health of the seed. In AquaTechnics sample 10, condition was very good with 100% of animals in a high to moderate condition. Samples 1, 4, 5, and 8 could be considered in moderate nutritional condition, with less than 30% in the low and very low conditions. Samples 3, 6, 7, 9 and 11 could be considered to have a moderate to severe loss of digestive gland condition with 40% to 56% with a low to very low digestive gland condition. Sample 2 is considered to be in a severe condition of nutritional stress with 88% in low or very low condition.



Typical low digestive gland condition from AquaTechnics sample 11. Examples of low to very low condition shown at arrows.



Examples of invasive ciliates from AquaTechnics sample 4. Ciliates shown at arrows in pallalial and coelomic cavities.

Infectious conditions: AquaTechnics samples 4 and 8 had a high proportion of invasive ciliate infections. The actual rate of infection was likely higher than shown in the table and these cultures should be considered terminal as a result of the invasive ciliate infections. Sample 8 showed a 20% prevalence of bacterial infections and sample 11 showed an 8%

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prevalence of the same.

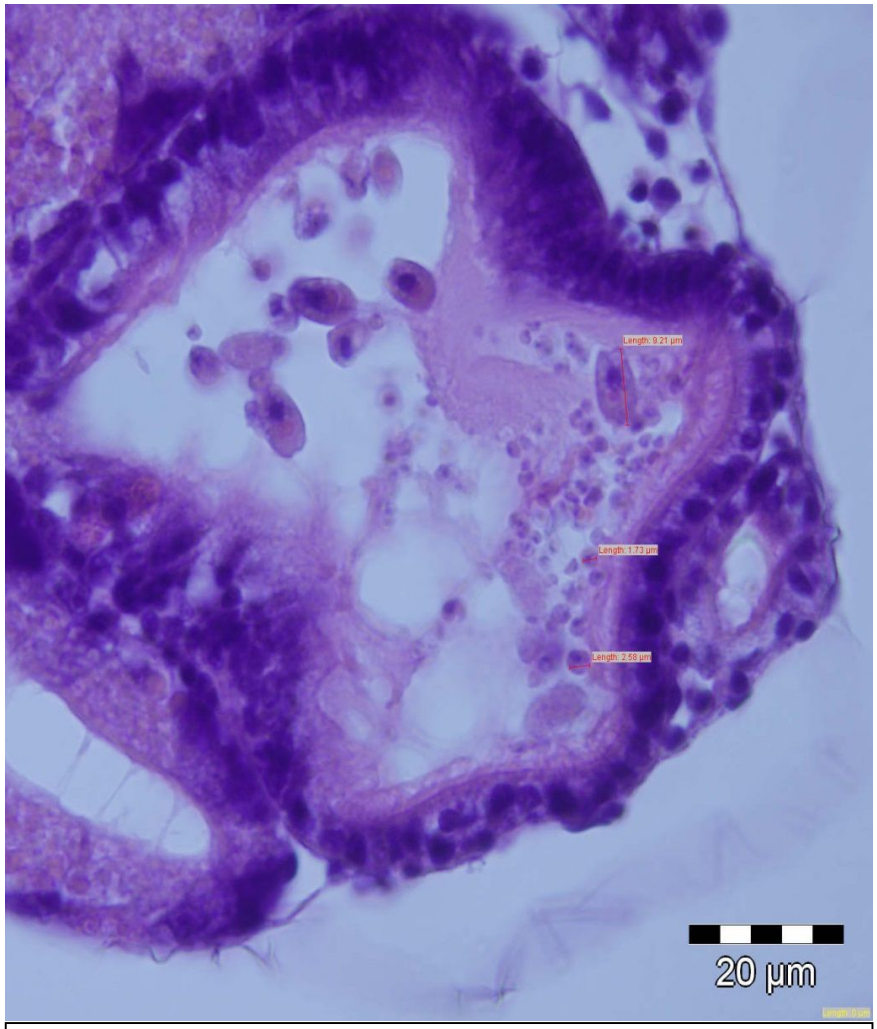
Other observations: All individuals had a widely mixed size range of material in the stomach, with two typical morphological forms, one measuring about 1.5 to 2.0 um in diameter and the larger form ovoid form measuring about 9 to 10 um in length.

The typical microbial mat on the external shell surface varied by group, but was generally considered moderate in most groups but was considerate notably minimal in AquaTechnics groups 3 and 6.

Responsible individual for examination:

Ralph Elston PhD
Fish Pathologist
Certification No. 5
Fish Health Section
American Fisheries Society

Ralph Elston, PhD
October 26, 2015



Typical example of mixed size material in stomach of seed. From AquaTechnics sample # 1.