

Mushy Halibut Syndrome

I. Causative Agent and Disease

Smaller halibut of 15-20 lbs. caught by sportfishing charters near Homer and Soldotna, AK have had a condition locally known as “mushy halibut”. Typically, this condition consists of fish having large areas of body muscle that is abnormally opaque and flaccid or jelly-like. The overall body condition of these fish is usually poor and often they are released because of the potential inferior meat quality.

II. Host Species

Smaller Pacific halibut in the Cook Inlet and Homer/Seward areas of Alaska.

III. Clinical Signs

Fish are asymptomatic except for poor body condition. Large areas of the fillets are abnormally opaque and flaccid in texture.

IV. Transmission

No infectious agents or parasites have been detected in affected fish, therefore, transmission from fish to fish is not likely. A nutritional deficiency is suspected.

V. Diagnosis

Diagnosis is by gross observation of flaccid, opaque musculature with confirmation of a noninfectious degenerative myopathy by histological examination. Microscopically, there is severe muscle fiber atrophy, fragmentation and necrosis with a loss of muscle mass. In some cases there is accompanying inflammatory cells, fibrosis and calcification of atrophied fibers.

VI. Prognosis for Host

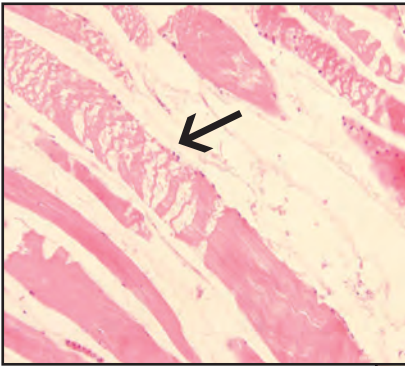
Reportedly, the Cook Inlet and Homer/Seward areas are nursery grounds for large numbers of young halibut that feed primarily on forage fish that have recently declined in numbers. Stomach contents of smaller halibut now contain mostly small crab species. Whether this forage is deficient, either in quantity or in essential nutrients is not known. However, mushy halibut syndrome is similar to that described for higher animals with nutritional deficiencies in vitamin E and selenium. This muscle atrophy would further limit the ability of halibut to capture prey possibly leading to further malnutrition and increased severity of the primary nutritional deficiency.

VII. Human Health Significance

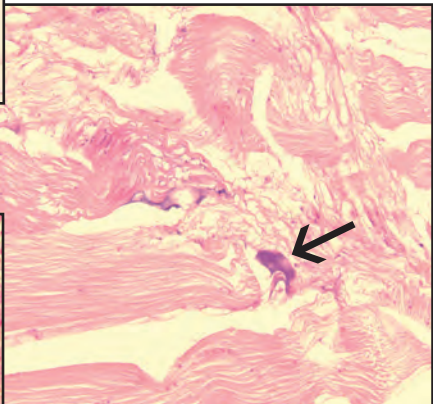
Although aesthetically displeasing, there are no known human health concerns with mushy halibut syndrome.



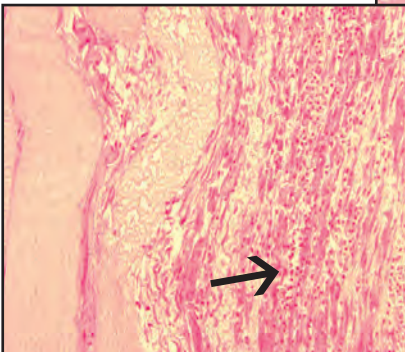
Flaccid, glistening halibut flesh typical of mushy halibut syndrome



Skeletal muscle fiber atrophy with fragmentation (arrow) necrosis and loss of muscle mass (empty spaces)



Early calcification (arrow) of atrophied muscle fibers



Atrophied muscle fibers with fibrosis and infiltration of inflammatory cells (arrow)