

NATIONAL
Aquaculture
ASSOCIATION

June 26, 2006

Dr. Michael David
Chief Sanitary International Standards Team
USDA/APHIS/Veterinary Services
4700 River Road, Unit 33
Riverdale, Md. 20737-1231

Re: Comments on AAH Mar 2006 reports (transport and slaughter)

Dear Dr. David:

The National Aquaculture Association (NAA) appreciates the opportunity to comment on four of the March 6, 2006 OIE AAH documents (Introduction to OIE Guidelines for the Welfare of Aquatic Animals, Animal Welfare Definitions, Guidelines for the Land Transport of Fish, and Guidelines for the Slaughter of Farmed Fish for Human Consumption). The NAA is the largest farmed fish trade association in the US and represents producers and aquaculture equipment suppliers for a variety of aquatic animal species. These species are raised for human food consumption, recreation, bait, and for ornamental purposes.

The underlying premise of the guidelines is that fish feel pain and are “sentient.” The premise is not well supported by credible scientific evidence and is hotly debated. The capacity to feel pain is dependent on cerebral cortical areas of the brain absent in fish¹. To be conscious, capable of fear or to suffer also requires neurological structures not present in fishes¹. The OIE authors acknowledge further research in these areas is needed to understand in “full” the ability of aquatic animals to feel pain and be sentient yet proceed to these guidelines assuming fishes are fully capable of pain and suffering. This requires a leap of faith or dogma that is being driven by factors other than credible science. If OIE adopts these guidelines as currently premised, their credibility as a science based advisory body will be significantly weakened.

Because conclusions of a few scientists appear in press, even in some scientific or quasi-scientific journals, does not mean they are accepted scientific fact. In view of the considerable scientific disagreement between experts as to whether fish have even rudimentary sentience or pain perception, it seems premature to premise the guidelines on such conclusions. To do so weakens arguments in favor of good animal husbandry for the purpose of health management and prevention of aquatic animal disease. The NAA suggests that until there is considerably more scientific support for fish sentience and pain from a variety of credible scientific sources, it is premature to recommend procedures to ensure “humane” slaughter or to recommend procedures for transport of aquatic animals on the basis of “animal welfare.” The guideline for “humane slaughter” should be

¹Rose, F.D. 2002. The neurobehavioral nature of fishes and the question of awareness and pain. Reviews in Fisheries Science 10: 1-38.

eliminated for lack of scientific rigor. The fish transport guidelines should be revised to focus on promoting maintenance of good fish health during transport with opportunity to minimize the spread of aquatic animal pathogens. We offer additional comment below.

Introduction to OIE Guidelines for the Welfare of Aquatic Animals

The guiding principles need to be revised to better emphasize the importance of good husbandry for aquatic animals to help minimize physiological stress thus helping to prevent disease. Veterinary experience and that of fish farming communities throughout the world can demonstrate the importance of good animal husbandry for promoting good animal health. Reference to the so called “internationally accepted five freedoms” is misleading. The five freedoms are neither internationally accepted for **poikilothermic aquatic** animals nor are they necessarily appropriate for fish and shellfish since such animals are not sentient nor do they feel pain. The so called “international” acceptance is largely restricted to various countries in the European Union and to New Zealand. The scientific evidence that fish are sentient and can feel pain is questionable and hotly disputed. Similarly, suggestion that there is “international recognition of the three R’s (reduction in numbers, refinement of experimental methods and replacement of aquatic animals with non-animal techniques)” is incorrect. Many countries actively support the use of animals, especially poikilothermic aquatic animals, for research purposes. The use of poikilothermic aquatic animals for research is distinctly advantageous to others because rearing costs are less, they are phylogenetically and hence physiologically less complex and appear directed by innate behavior. Further, many poikilothermic aquatic animals thrive at high animal density naturally or under farming conditions. Therefore, the premise that there is an “ethical duty” to ensure aquatic animal welfare cannot be justified. There is, however, good economic reason to practice good animal husbandry and these should be emphasized. Claims that the scientific assessment of aquatic animal welfare has progressed in recent years is false. There is only limited circumstantial evidence that poikilothermic aquatic animals have even rudimentary sentience or ability to feel pain. The absence of a neocortex in fish and shellfish argues against such abilities¹. At the least, there is considerable scientific controversy regarding pain perception and sentience in fish. There is no “international” acceptance of sentience or pain in aquatic poikilothermic animals. We, however, agree that aquatic animal production is impacted by proper assessment of health and injuries, animal growth, behavior and other performance factors, and their proper feeding, management and transport.

Fish Transport

Article 2 (Responsibilities) is overly regulatory and intrusive assigning *Competent Authorities* responsibilities for planning and oversight of aquatic animal transport. As such, this approach probably reflects the guideline author’s belief that it is well established fact that fish are sentient and capable of feeling pain. As such, the authors attempt to elevate the issue by employing competent authority oversight. In addition to being unjustifiable on scientific grounds, such oversight would be very expensive, probably cause significant delay when fish transport were needed and, in most cases, be impractical because of the scarcity of *Competent Authorities*, in most countries, capable of addressing fish transport. Reference to the term “standard” assumes a degree of scientific rigor that cannot be justified based on published scientific studies dealing with fish transport.

Prudence and experience would certainly dictate that many of the procedures identified in the proposed fish transport guidance would be helpful to anyone transporting fish. For example, providing well maintained suitable equipment, instituting efforts to minimize physiological stress, disinfecting hauling tanks, ensuring fish transport operators are well trained, and ensuring fish

scheduled for transport are healthy seem prudent. Interestingly, while the authors identify the importance of acclimatization to water temperature, they fail to identify the importance of acclimatization to accommodate differences in water chemistry, a well known factor impacting fish health during and following transport.

The NAA recommends the transport guideline be revised to emphasize minimization of physiological stress prior to and during transport to help prevent disease. Measures that likely improve survival such as maintaining dissolved oxygen concentrations at near saturation, removal of animal waste products (CO₂ and ammonia), reducing hauling water temperatures, using good quality well buffered water during transport, prevention of overstocking and monitoring key water quality parameters during transport should be emphasized.

Humane Slaughter and Animal Welfare Definitions

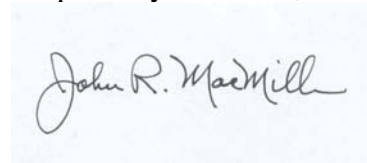
The definition of “humane killing” in chapter 1.1.1 needs to be removed because it cannot be well supported by rigorous scientific evidence. The definition of an aquatic animal technician needs to be revised because it requires a certification program that is not warranted. There is no definition for poikilothermic aquatic animal welfare. We suggest defining poikilothermic aquatic animal welfare as minimization of physiologically quantifiable stress.

The guidelines dealing with humane slaughter are based on beliefs that cannot be scientifically well justified. These guidelines should be eliminated. The guidelines promote stunning as a “humane” method to precede slaughter yet there is limited scientific data to support this method versus other methods such as an ice bath or air shock. Various species of aquatic animals are very quickly immobilized by exposure to 4-6 C water temperatures so the absence of this technique is curious.

Summary

The NAA recommends that the USDA oppose the humane slaughter guidelines because they cannot be scientifically justified. The NAA recommends that USDA pursue revision of the transport guidelines to reflect transport of aquatic animals for health management and disease prevention. The NAA recommends that the USDA seek revision of the “Introduction to OIE Guidelines for the Welfare of Aquatic Animals” because they make statements that are not true, presumptuous, dogmatic and cannot be supported by broad scientific acceptance.

Respectfully submitted,

A handwritten signature in black ink on a light blue background. The signature reads "John R. MacMillan" in a cursive script.

John R. MacMillan, Ph.D.
President

cc: Dr. Jill Rolland, USDA/APHIS