



# Atlantic States Marine Fisheries Commission

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## MEMORANDUM

January 19, 2016

**To: American Eel Management Board**  
**From: American Eel Advisory Panel**  
**RE: Advisory Panel Review of North Carolina's Aquaculture Plan**

The American Eel Advisory Panel (AP) met via conference call to discuss North Carolina's aquaculture plan. The AP comments focused on two major topics: (1) the current status of the markets for American eels, and (2) the accountability of collected eels from harvest to growout in North Carolina's plan. Below is a summary of their discussion.

### **1. Identifying Markets**

AP members discussed that a requirement of Addendum IV is to identify eel markets, but yet the plan lacks that information. Generally, the AP was concerned that there are no existing markets for cultured eels because there are not any facilities producing cultured eels. Furthermore, the wild markets are depressed because eel farms in Europe have created volumes of inexpensive eels driving down the demand for wild eels from the U.S. The AP compiled information on all potential eel markets to demonstrate their concerns and supplement the limited information provided in North Carolina's proposal (Appendix 1).

AP members were also concerned with the high density growout system proposed in North Carolina's plan. Specifically, it is impossible to raise eels in high density without producing 80-90% males, which will not reach adequate size to service the food market. The only way to address this is the use of bioactive additives, which are currently not approved in the United States. As a result the smaller eels would go into the bait market, but there is no market demand for domestic bait eels that cannot be met by the wild catches. Current supplies of these small wild eels already far exceed the demand, as stated in Appendix 1. Therefore, the AP is concerned that North Carolina has not addressed the challenge of all-male production.

### **2. Accountability**

The AP discussed that North Carolina's plan has good monitoring for collecting the eels and getting them to the aquaculture facility, but what about internal tracking. The AP recommended that a complete accounting system be implemented for the aquaculture facility so that eels can be traced from collection through growout. As part of that recommendation, the AP requested that eels dying during husbandry be kept for marine patrol inspection so that complete accountability can occur regardless of whether the eels survive the growout.

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### **Other Comments**

Addendum IV sets forth that if a state wanted to apply for this eel aquaculture quota, they had to do so by June of the prior year. North Carolina requested a waiver to submit their Aquaculture plan on December 1, which was granted by the Board.

The AP noted that granting the application provided North Carolina an unfair competitive advantage over other states and commercial enterprises that might want to pursue an aquaculture quota. This is not a hypothetical objection, but represents the concerns of actual competitive commercial ventures.

## **Appendix 1: Advisory Panel Market Analysis: The Role of Wild American Eel and Farmed Eels in Worldwide Markets**

### Notes:

- ASMFC addendum IV imposes a 9-inch minimum limit for the harvest of American eel.
- An eel harvested at 9-inches will rarely if ever exceed 120 grams. Most if not all will be 50 grams or less.
- The following summary describes generally the worldwide market for wild American eels as well as some information about European and Asian farmed eels.

### **Wild American Eels**

#### **Under 120 grams**

- Eels of this size are used predominantly for the domestic live bait market. Live bait markets are supplied by ample wild eel catches and market prices have been stagnant or dropping the past five years.
- Small, niche live markets for this size wild eels exist in southern European countries. This demand could not absorb anywhere close to all the under-120 gram eels harvested in North America.
- There are some even-smaller niche markets in some domestic ethnic markets for under 120 gram eels, but the volume is small.
- There is high demand from Asian farmers for these small, wild eels (live) for stocking; ASMFC is aware that this Asian demand is putting enormous pressure on the undersized eels because the true Asian preference for stocking eels is for eels under 9 inches.
- The Asian markets have shown no interest in this size eel for food production.
- The glut of small wild eels is so bad that domestic producers have over 35 tons of this size eel in frozen stock leftover from 2014 and 2015 harvests, and stopped or drastically lowered the volume of buying eels in both years to avoid accumulating additional inventory.

#### **120 – 250 grams**

- This size is used almost exclusively by central European live eel customers who specialize in “small sizes.”
- The wild supply of eels at this size also exceeds demand, therefore domestic producers have sizable, existing frozen inventory.
- Domestic demand for this size is small.
- European smokers will use this size, but only farmed eels, not wild

### Notes Relative to Aquaculture:

- This size represents the mid-range and upper limit for male eels; European eel farms produce almost all of their eels in this range, thus this product dominates the market.
- A North American eel farm raising glass eels in an intensive, recirculating aquaculture system (RAS) will produce 80-90% of its product as males unless they use bioactive additives in their production, which is against the law.
- There being almost no domestic market for this size eel, a North American farmer would have to market this size product in Europe. However, European farmed eels are at historical low

prices now, plus not subject to the duties and transportation charges, thus making it challenging for a North American venture to compete with the European domestic growers head-to-head.

### **250-400 grams**

- This remains the most popular size for central European wild eel markets and is at the heart of the domestic export market of live, wild eels.
- The traditional user of this size wild eel favors the low-fat character of wild eels and is resistant to farmed eels.
- Few farmed eels reach this size, unless bioactive additives or low-density farming is used, as is the case in Asia. Bioactives are not lawful in North America and low-density farming is contrary to RAS principles.

### **Over 400 grams**

- This is the size of eel desired by the North American Asian ethnic markets. Most live eels sold in Chinatown NYC, Toronto, Philadelphia, Boston are in this range. Most domestic smokers use this size. The Christmas market is also geared mostly towards this size.
- Any effort to farm and sell eels to existing domestic markets would have to be geared towards this size eel.
- Less than 20% of farmed eels will reach this size unless bioactive additives are used, which is illegal in North America.
- This market is satisfied exclusively by wild eel production for at least seven months a year.

### **Farmed eels**

#### **Asian farming:**

- Eel farming in Korea and China is based on the feminization of 80-90% of all eels stocked. This is done through the use of bioactive additives that are not lawful in North America, or through low-density stocking, which is contrary to an RAS system.
- The majority of eels raised in Asia are harvested over 300 grams and processed into *unagi kabayaki*, or roasted eels.
- Asians import virtually no farm-raised eels from non-Asian countries. Any exceptions would be small.

#### **European farming:**

- The Europeans do not allow the use of bioactive additives in eel farming. Therefore 80-90% of the production is male, and harvested well below 250 grams.
- The vast majority of these eels are smoked in northern Europe and sliced into 100 gram fillets, which is a highly specialized, but popular product. The product is non-existent in North America.
- Despite decades of experience, the European eel farmers and processors have not been able to create *unagi kabayaki* production capacity that is able to compete with the Asians. Putting aside the cost-side advantages of Asian manufacturing, the slow and limited growth of male eels as compared to female eels precludes the Europeans from competing successfully.