

---


# Monitoring, Inspection and Enforcement

---

GARY FISH

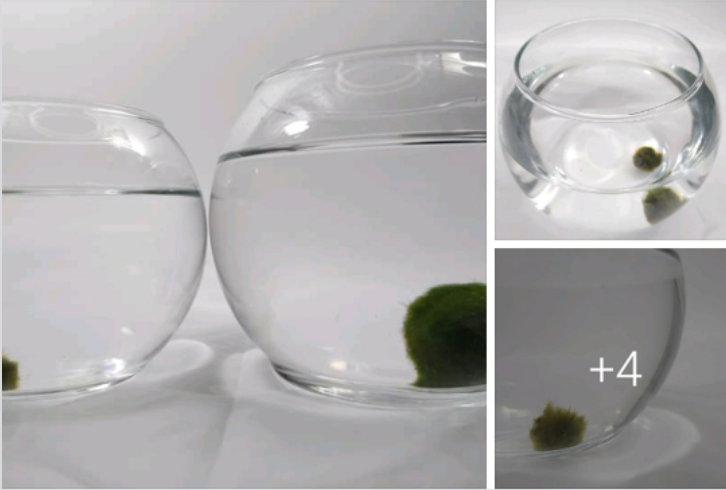
MAINE DACF

A solid blue horizontal bar at the bottom of the slide.

 **Patti Davis** added 7 new photos. ⋮  
 Highly Rated • 2 hrs • 📷

Marimo Moss Balls, actually algae, are super low-maintenance. They like a cool and shaded space to chill out and fresh water every few weeks. They grow slowly and can live for what seems like forever (the oldest known marimo is over 200)!!!

Japanese legends say they originated from the hearts of two lovers who couldn't bear to part - their heart... [See More](#)



\$10 · BRUNSWICK, ME  
**Marimo Moss Balls, all sizes** MESSAGE

# Marimo moss balls are the perfect, imperfect example

---

# MOSS BALL CONCERNS



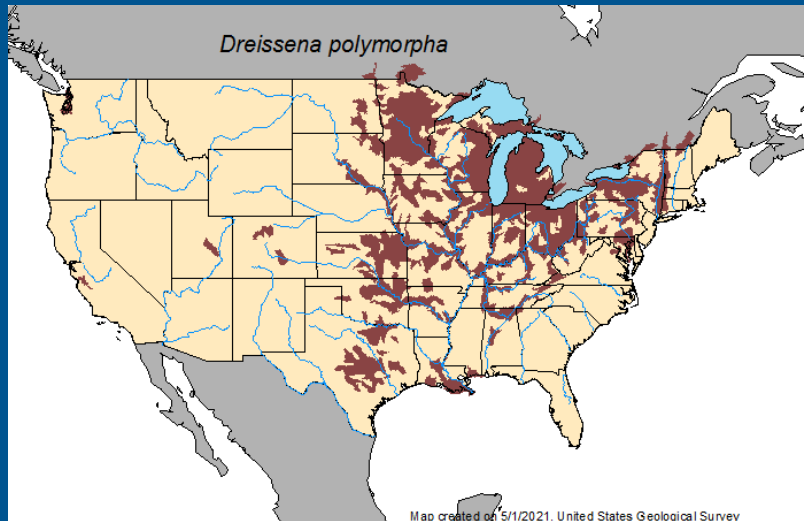
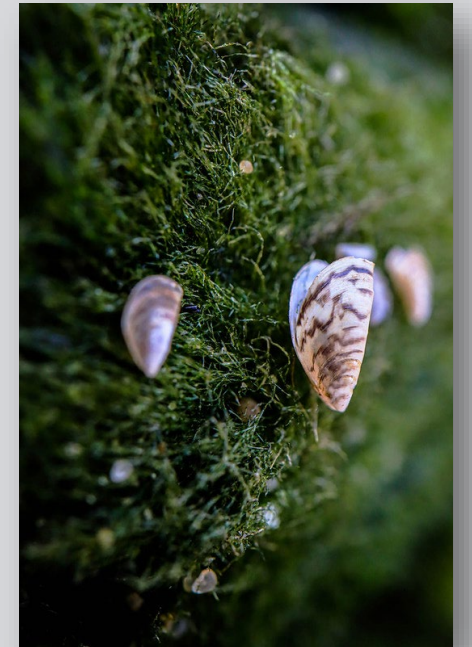
- USGS confirmed zebra mussels confirmed inside moss balls on March 2, 2021

- Native to the Black and Caspian Sea drainages in Eurasia

- Introduced into North America through ballast water in 1980's

- Notorious Biofouling Invader

- Listed as Injurious Wildlife under the Lacey Act



# An Atypical AIS Challenge

A **contaminated plant commodity** but not with a plant pest

- ✓ Zebra mussels listed as injurious wildlife

**Widely dispersed:** At least 46 States with found contaminated moss balls

- ✓ Pet stores, grocery stores, water gardens, eCommerce retailers
- ✓ Invasive species management and law enforcement responsibilities

Active **law enforcement investigation** at State and Federal levels

- ✓ Complicated communications: Federal to State enforcement staff

# Management Objectives & Actions

---

- Stop the importation of zebra mussel contaminated moss ball products into the United States
- Properly dispose of contaminated moss ball products already in the U.S. supply chain, retail stores, on-line eCommerce, and home aquariums.
- Federal agencies including, the USFWS, USDA, USGS, CBP, and NISC began meeting regularly to share information and determine where and how to take action.
- State agencies also collaborated on where and how to take action



# 2021 Timeline of Some Key Activities and Events

- 
- 2/25 — Seattle PetCo and filed report to NAS
- 3/1 — moss balls shipment destroyed
- 3/2 — USGS confirms ID; 2 States
- 3/3 — USGS notifies ANSTF; 8 States
- 3/5 — Web page for disposal/decon; FWS/USDA/CBP start meeting on regular basis; Pest Bulletin created; FWS Office of Law Enforcement opened investigations for possible criminal violations (ongoing)
- 3/7 — First Q&A developed; 29 States
- 3/8 — AFWA begins working w/ States to obtain contact tracing info (product names/suppliers); 32 States
- 3/10 — CBP routing all moss ball shipments to Plant Inspection Stations; Wyoming bans sale of Moss Balls; FWS briefs State Fish Chiefs; 33 States
- 3/12 — Canada forms ICS response and contacts ANSTF coordination/info sharing; 38 States

- 
- 3/16 — Arizona quarantine established
- 3/23 — North Dakota quarantine established
- 3/29 — eCommerce letters issued by USDA and FWS
- 4/6 — Alaska quarantine established
- 4/8 — Pet Advocacy Network issues guidance to pet businesses
- 4/12 — Terrarium garden sales reported at Carr-Safeway; Wyoming take back program announced
- 4/22 — AmericanHort article published; 42 States
- 4/23 — PANetwork issues water garden decon protocols
- 4/25 — Seized shipment sent to USGS
- 4/26 — FWS/USDA/CBP issues 2<sup>nd</sup> round of Q&As
- 4/27 — 46 States. Only States w/o confirmed contaminated moss balls DE, RI, WV, HI

# Moss balls: Examples of Federal Action

## **U.S. Fish and Wildlife Service**

- Coordinating enforcement of international, federal, and state levels
- Communicating information to federal, regional and state partners

---

- Coordinating with industry
- Securing eDNA technology for use at inspection sites

## **U.S. Department of Agriculture**

- Working with USFWS to intercept ZM at plant inspection stations
- Communicating with eCommerce to restrict sales

## **U.S. Customs and Border Protections**

- Targeting certain international shipments for referral to CBP Plant Inspection Stations
- Traceback and trace-forward efforts

## **U.S. Geological Survey**

- Maintains records in NAS database, Assists with identification of specimens
- Development of point-of-use eDNA tools

# Examples of Industry Action

## **Pet Advocacy Network**

- ✓ Industry alert – March 5th
- ✓ Included an alert on Habitattitude
- ✓ Developed decontamination protocols using KCL (Potassium Chloride)
- ✓ Recommended an industry moratorium on moss ball trade
  - “Place a moratorium on the importation, purchase, and sale of all moss balls until a method of testing and treatment can be established to ensure a clean trade.”
- ✓ Developed water garden decontamination protocols

## **PetCo/Pet Smart**

- ✓ Recommended disposal and refunded/recalled contaminated products
- ✓ Issued consumer alerts
- ✓ Supportive of law enforcement officials collecting moss balls as evidence



# Examples of Industry Action (Continued)

- **Albertsons – Carr/Safeway**
  - ✓ Committed to removing **terrarium moss ball products** from shelves
- **On-line market places, such as Amazon, Etsy, and eBay**
  - ✓ **Removed listings of foreign IP addresses** where direct imports into the United States of propagative material was occurring
- **AmericanHort**
  - ✓ Newsletter: “protocols do not exist to enable safe, clean, and compliant trade in moss balls. Until such protocols are developed, **retailers are urged not to sell moss balls**. Retailers and their customers are **urged to safely destroy moss balls and to decontaminate the aquarium or water garden systems in which they were growing.**”
- **Marshall Meyers (Attorney representing aquarium industry importers/exporters)**
  - ✓ Working to obtain **water samples** from global suppliers of moss balls to validate eDNA sampling
  - ✓ **Facilitated communications** between industry and agency personnel

# Examples of State Action

Agricultural quarantines of moss balls: WY, AZ, AK, OR, ND

- This has been extremely helpful in reaching out to industry on a national basis.

Many States regulate the use, possession, and transport of zebra mussels.

- Working with local pet stores, nurseries, aquatic supplies, and on-line merchants.

Contact tracing information and local enforcement of State laws and regulations

Facilitating communications between Federal & State law enforcement and AIS personnel

# Many articles written

- Maine sent out messages to:
  - Pet stores
  - Grocery stores
  - Garden centers
  - Facebook marketplace
  - Etsy seller
  - Online seller

## Protect Maine's Waterways From the Invasive Zebra Mussel



left: Marimo moss ball contaminated with zebra mussels, Right: a display of Marimo moss balls for sale at a pet store

In March we [forwarded a message from the Maine Department of Inland Fisheries and Wildlife](#) about marimo moss balls that were sold in the aquarium trade and potentially infested with invasive zebra mussels. At the time we believed that the moss balls were mainly sold by pet stores or other businesses selling aquarium materials, since then we have learned that marimo moss balls are also sometimes sold as terrarium or houseplants. With this in mind, we wanted to provide more information about zebra mussels and the proper disposal of contaminated materials including exposed marimo moss balls, other plants and water.

### What are marimo moss balls?

Marimo moss balls (*Aegagropila linnaei*) are not plants, but a form of filamentous green algae. Although not common, in nature they are found in lakes in Japan and northern Europe, where gentle wave action forms the algae into its characteristic round shape. Marimo moss balls are sold for decorative use in aquariums (sometimes under the trade name "Betta Buddy") and are also occasionally sold as terrarium or house plants. Marimo moss balls are not considered invasive.

# Moss Ball Entry Into U.S.:

## Key Changes Due to Contamination

Pre	Post
Moss ball State regulations: HI	Moss ball State regulations: HI, WY, AZ, AK, OR, ND
	CBP, USDA, FWS law enforcement and invasive species staff meet regularly
< 12 moss balls non-commercial shipment	1 moss ball = commercial shipment and referred to PIS
Non-commercial person-to-person shipments	All moss ball shipments under permit
Imports arriving through Plant Inspection Stations at JFK, LAX, and Miami	Imports must arrive through JFK or LAX
Shipments cleared if no pests or pathogens of plants	All moss ball shipments referred to the USFWS
	Agreement to pursue eDNA testing of moss ball shipments by USFWS

# What roadblocks or gaps in authorities or response were highlighted?

## **Aquatic plant commodities:**

- ✓ Imports inspected by CBP and PPQ for regulated pest and pathogens of plants
- ✓ If imports are not properly manifested it could be a case where USDA-APHIS Smuggling Interdiction and Trade Compliance would become involved
- ✓ If non pest and pathogens of plants are found during PPQ inspection, shipments referred to FWS as the primary regulator of wildlife imports
- ✓ Other organisms found on moss balls within States: nematodes and flatworms; snails and fingernail clams; ostracods and copepods; macrophytes and algae; sponges; and mites

## **Unanticipated national/international scope in “rapid response”:**

- ✓ No national ICS plan in place for AIS

## **Zebra mussels listed as injurious wildlife:**

- ✓ No interstate prohibition
- ✓ Need for continued State leadership on quarantine of moss balls: Leverage use, possession, and sale authorities

# Going Forward

## **After-Action Report**

## **Update Website**

## **Continue controls on imports**

- ✓ Refer all moss ball shipments to Plant Inspection Stations through JFK or LAX
- ✓ Agreement to sample any new moss ball imports using point-of-use eDNA sampling; Re-export based on positive molecular finding

## **Continue working with Industry**

- ✓ To develop clean trade protocols and processes

**Collectively urge and advocate at local, regional, state, and national levels that retailers not sell moss balls until clean trade processes are in place**

# Thank You!

---

This presentation was first developed by:

Susan Pasko

Craig Martin

US Fish & Wildlife Service

---

