Frequently Asked Questions: Infection by Ostreid Herpesvirus-1 Microvariants

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Find answers to common questions about infection by ostreid herpesvirus-1 (OsHV-1) microvariants, sometimes referred to as Pacific oyster mortality syndrome (POMS).

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What is OsHV-1?

Infection with OsHV-1 microvariants have been reported in several bivalve species. The term “microvariant” refers to closely related variants of OsHV-1, which have caused mass mortalities of oysters in Europe, the United States, Asia, Australia, and New Zealand. Infection is often lethal for Pacific oyster (*Crassostrea gigas*) spat and juveniles. Affected animals show decreased feeding and swimming activities, as well as sudden death; however, infection can also occur with no signs of disease. OsHV-1 is not transmissible to humans (not zoonotic).

What species of shellfish are affected by OsHV-1 microvariants?

The primary species susceptible to mortality from OsHV-1 microvariants are the Pacific oyster (*Crassostrea gigas*) and the Portuguese cupped oyster (*Crassostrea angulate*); however, research on species susceptibility is ongoing. For example, literature suggests that additional mollusk species may be susceptible to infection.

How are OsHV-1 microvariants transmitted? Is it possible to introduce this virus from shells obtained through shell recycling programs?

OsHV-1 microvariants are known to spread between populations and animals through the movement of animals, shells, and water and presumably also equipment, packaging, or gear that has not been cleaned and disinfected. The virus may be carried in live or frozen shellfish. It is unclear whether OsHV-1 microvariants can also transmit vertically from parents to offspring. We recommend thoroughly drying shells to kill residual virus.

Which agency has authority over animal pathogens or diseases that could be introduced via live animal imports from foreign waters or countries?

Under the Animal Health Protection Act , the U.S. Secretary of Agriculture has the authority over the prevention, detection, control, and eradication of animal diseases, including aquaculture. The term "animal" is defined as any member of the animal kingdom (excluding humans). Section 10401 (Title 7, United States Code) provides the authority for the U.S. Secretary of Agriculture to regulate aquaculture. This includes the regulation of imported aquatic animals and products, diagnostic services, and disease control and eradication. Additional Federal regulations make it illegal to place imported shellfish, water, or other foreign materials in U.S. waters.

How is the introduction of OsHV-1 microvariants prevented through the importation of live oysters intended for human consumption?

The potential introduction of OsHV-1 occurs through contact of imported oysters (including their shells and transport water) with U.S. oysters or their environment. Currently, there are no Federal import regulations to prevent the introduction of OsHV-1 microvariants via live animal imports.

It is recommended that importers take specific precautions bringing live oysters into the United States from countries where OsHV-1 microvariants have been detected:

1. Do **not** place oysters in U.S. waters for freshening (wet storage) or other purposes,
2. Do **not** discharge untreated water used to clean shipping materials or hold oysters in the environment or U.S. waters, and
3. Do **not** discard oyster remnants or shells into the environment or U.S. waters.

Is it possible that oysters may enter the United States from countries known to have OsHV-1 microvariants?

Currently, USDA does not have any Federal requirements prohibiting live oyster imports from countries where OsHV-1 microvariants have been detected. Some States may have import controls for OsHV-1.

How is USDA addressing the potential risk of OsHV-1 microvariants introduction into the United States, including potential impacts from the outcome of FDA's equivalence determination regarding raw molluscan shellfish imported from certain European Union Member States?

In 2020, the U.S. Food and Drug Administration (FDA) and the European Commission finalized equivalence determinations of each other's system of food safety control measures for raw molluscan shellfish. These equivalence determinations initially will enable exports of shellfish from Massachusetts and Washington to the European Union and imports from Spain and the Netherlands to the United States. Negotiations concluded in 2022, and the European Commission's publication of the export health certificate that will be issued by the National Oceanic and Atmospheric Administration signaled the bilateral start of trade, which was scheduled for February 27, 2022.

USDA evaluated the potential risks that imported shellfish may introduce OsHV-1 microvariants into U.S. domestic and wild shellfish populations. We posted the review at Potential Introduction Pathways of OsHV-1 in the United States (746.37 KB) .

Who should be contacted if OsHV-1 microvariants are suspected or detected?

Producers or owners who suspect an animal disease should contact their veterinarian to evaluate the animal(s). Find an accredited veterinarian.

Animal health professionals (veterinarians; diagnostic laboratories; public health, zoo, or wildlife personnel; and others) report diagnosed or suspected cases of nationally listed reportable animal diseases to APHIS Area Veterinarians in Charge and to the State animal health official as applicable under State reporting regulations.

Where can I find more information on OsHV-1 microvariants?

More information is available under "Mollusk Diseases" at Aquaculture Health.

Where can I find more information on the international movement of oysters and associated resources?

In addition to USDA, there are several Federal agencies involved in efforts to protect oyster sectors in the United States, including the FDA, NOAA, and the U.S. Environmental Protection Agency.

More information and free tags for dealers importing foreign shellfish are available from the East Coast Shellfish Growers Association.

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