UCDAVIS VETERINARY MEDICINE
California Animal Health & Food Safety Laboratory System
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**CAHFS Accession #: S2505381**

**FINAL REPORT**

**Ref.#:** Fish

**Coordinator:** Nicolas Streitenberger, DVM, PhD, Dipl. ACVP

**E-Signed and Authorized by:** Streitenberger, Nicolas on 8/21/2025 8:30:45PM

**Email To:**
Laguna Niguel Regional Park
jonathan.curry@ocparks.com

**Collection Site:**
Laguna Niguel Regional Park
13042 Old Myford Rd,
Irvine CA 92602
Orange County

**This report supersedes all previous reports for this case**

**Specimens Received:** 3 Carcass;

**Date Collected:** 07/24/2025 **Date Received:** 07/24/2025

**Comments:** Jordyn - Client paid $468.00 via CC 7/24/25.mkDavis

## Case Contacts

| | | | | | | |
|---|---|---|---|---|---|---|
| Submitter | Aquatechhnex LLC | 760-702-4831 | 2025 S Lyon St | Santa Ana | CA | 92705 |
| Owner | Laguna Niguel Regional Park | 949-923-3760 | 13042 Old Myford Rd | Irvine | CA | 92602 |

## Specimen Details

| Animal/Source | ID Type | Taxonomy | Gender | Age |
|---|---|---|---|---|
| S2505381-01 | CAHFS Internal ID | Fish | | |

## Laboratory Findings/ Diagnosis

Three dead bass fish.

Cause of death undetermined (please see Summary section for comments)

1. Severe postmortem decomposition (3/3)
2. Nematodiasis and cestodiasis (3/3)
3. Liver: Pigmented macrophage aggregates
4. Edwardsiella tarda isolated (liver) (2/3)
5. Viral hemorrhagic septicemia virus (VHSV) NOT detecetd (3/3)

## Case Summary

8-21-25: Viral hemorrhagic septicemia virus was not detected in the kidney (3/3).

Testing concluded.

8-11-25: Meaningful interpretation of microscopic changes is hindered by the degree of postmortem decomposition. (Fish tend to autolyze very quickly so often it is challenging to interpret the microscopic changes.). There is evidence of parasite infestation in the three carcasses. Additionally, Edwardsiella tarda was isolated from the liver in two of the fish. This organism has been associated with disease in fish, however, given the severe autolysis the significance of this isolate is difficult to assess. Pigmented macrophage aggregates (previously termed melanomacrophage aggregates) were identified in the liver. Pigmented macrophage aggregates are a relatively non-specific finding thought to be associated with a number of different processes including erythrophagocytosis, iron storage, and antigen presentation. As mentioned in the previous preliminary report, additional

toxicology testing (heavy metal testing on water) can be performed upon request for an additional fee. Please let us know if you are interested in pursuing additional toxicology testing.
This case was reviewed by one of our aquatic specialized pathologists (Dr. Eileen Henderson).
The final report will be released as soon as the viral hemorrhagic septicemia virus results become available.

More results to follow.

7-29-25: The carcasses exhibited gill pallor, that can likely be attributed to postmortem decomposition. The degree of postmortem decomposition hindered our gross examination of the submitted carcasses. Nematodes identified within the coelomic cavity of all three fish are likely incidental findings. Ancillary testing to rule out viral hemorrhagic septicemia virus infection (VHSV) is underway. If other fish species are also affected, oxygen issues, algal overgrowth, and potential toxin exposure should be considered as potential differential diagnosis. VHSV PCR, histology, heavy metal screen and bacteriology are currently underway. I will keep you posted with the results. In the meantime, do not hesitate to contact me if you have any questions about this report.
Please consider submitting additional fresh carcasses and corresponding water samples for toxicology testing.

More results to follow.

## Clinical History

Fish collected 7/24/25, suspected to have died on 7/19/25 or 7/20/25.

## Gross Observations

Three bass fish (A: 63 g, B: 80 g, C: 1.63 kg) were necropsied on 7-24-25. Carcasses were in poor postmortem condition with partially liquefied viscera and good body condition. There was a diffuse pale discoloration of gills. Profiles of nematodes are noted within the coelomic cavity (mesentery and serosae surfaces). No other abnormalities were appreciated grossly.

## Bacteriology

MALDI TOF Biotyper Identified the isolate as Shewanella sp.
MALDI TOF Biotyper Identified the isolate as Plesiomonas sp.
MALDI TOF Biotyper Identified the isolate as Acinetobacter kookii

**BACTERIAL AEROBIC CULTURE**

| Animal/Source | Specimen | Specimen Type | Result |
|---|---|---|---|
| S2505381-01 | A | Liver Swab | Edwardsiella tarda Rare# |
| S2505381-01 | B | Liver Swab | Aeromonas sp. Sm# |
| | | | Citrobacter spp. Sm# |
| | | | Edwardsiella tarda Sm# |
| S2505381-01 | C | Liver Swab | See Discipline Summary Rare# |
| S2505381-01 | A | Kidney Swab | Aeromonas sp. Mod# |
| | | | Vibrio sp. Mod# |
| | | | Proteus swarming |
| S2505381-01 | B | Kidney Swab | Aeromonas sp. Rare# |
| | | | Proteus swarming |
| S2505381-01 | C | Kidney Swab | Aeromonas sp. Rare# |
| | | | See Discipline Summary Rare# |
| S2505381-01 | B swim bladder | Swab | Aeromonas sp. Rare# |
| S2505381-01 | A gill swab | Swab | Aeromonas sp. Mod# |
| | | | Proteus swarming |
| S2505381-01 | B gill swab | Swab | Aeromonas sp. Lg# |

**BACTERIAL AEROBIC CULTURE**

| Animal/Source | Specimen | Specimen Type | Result |
|---|---|---|---|
| | | | Proteus swarming |
| S2505381-01 | C gill swab | Swab | Aeromonas sp. Mod# |
| | | | Proteus swarming |
| S2505381-01 | A | Skin Swab | Acinetobacter sp. Mod# |
| | | | See Discipline Summary |
| | | | Proteus swarming |
| S2505381-01 | B | Skin Swab | Aeromonas sp. Lg# |
| | | | Proteus swarming |
| S2505381-01 | C | Skin Swab | Aeromonas sp. Mod# |
| | | | Proteus swarming |

**BACTERIAL ANAEROBIC CULTURE**

| Animal/Source | Specimen | Specimen Type | Result |
|---|---|---|---|
| S2505381-01 | A | Liver Swab | Mixed flora - No significant organisms Rare# |
| S2505381-01 | B | Liver Swab | No anaerobes detected |
| S2505381-01 | C | Liver Swab | Mixed flora - No significant organisms Sm# |
| S2505381-01 | A | Kidney Swab | No anaerobes detected |
| S2505381-01 | B | Kidney Swab | Mixed flora - No significant organisms Mod# |
| S2505381-01 | C | Kidney Swab | Mixed flora - No significant organisms Sm# |
| S2505381-01 | B swim bladder | Swab | Mixed flora - No significant organisms Sm# |
| S2505381-01 | A gill swab | Swab | Mixed flora - No significant organisms Mod# |
| S2505381-01 | B gill swab | Swab | No anaerobes detected |
| S2505381-01 | C gill swab | Swab | No anaerobes detected |
| S2505381-01 | A | Skin Swab | Mixed flora - No significant organisms Mod# |
| S2505381-01 | B | Skin Swab | Mixed flora - No significant organisms Mod# |
| S2505381-01 | C | Skin Swab | No anaerobes detected |

## Histology

Representative routinely stained sections of heart, gill, liver, kidney, spleen, skin, skeletal muscle, swim bladder, gastrointestinal tract, and pancreas are examined. The most significant findings are:

There are multiple profiles of nematodes in the mesentery (A-C).
Intestines: There are multiple profiles of nematodes within the lumen. Multiple granulomas centered on cestodes parasites are noted in the intestinal wall (serosae and muscular layer). (A-C)
Liver: There are multifocal infiltrates of macrophages that often contain abundant brown intracytoplasmic pigment (pigmented macrophages aggregates). No mycobacteria were identified on special stains (Ziehl–Neelsen and Fite's stains) (A-C).

## Parasitology

**Test Specific Comments**

**FECAL EXAM - DIRECT WET SMEAR**

* Fecal Direct exam is the only diagnostic option for parasite detection if < 1g of feces is submitted; however, false negative results are possible with this method. Fecal flotation requires at least 1g for test accuracy.

**FECAL EXAM - DIRECT WET SMEAR**

| Animal/Source | Specimen | Specimen Type | Result |
|---|---|---|---|
| S2505381-01 | A | Feces | No parasite eggs detected |
| S2505381-01 | B | Feces | No parasite eggs detected |
| S2505381-01 | C | Feces | No parasite eggs detected |

## Toxicology

Reporting Limit (Rep. Limit): The lowest routinely quantified concentration of an analyte in a sample. The analyte may be detected, but not quantified, at concentrations below the reporting limit. Sample volumes less than requested might result in reporting limits that are higher than those listed.

No reference values are available for trace mineral concentrations in this species.

No reference values are available for trace mineral concentrations in this species at this laboratory. Al-Kenawy & Aly studied live minerals in two species of farmed carp (2015).

Copper: 138 and 138 ppm
Iron: 51 and 107 ppm
Zinc 4.33 and 12.9 ppm

Trace mineral concentrations are likely adequate. A low arsenic concentratin was detected in one sample, which is unlikely to have clincial significance. Cadmium concentrations range form low to relatively high, The highest cadmium concentration may have been high enough to impact kidney function.

**HEAVY METAL SCREEN**

| Animal/Source | Specimen | Specimen Type |
|---|---|---|
| S2505381-01 | A | Liver Tissue |

| Analyte | Result | Units | Rep. Limit | Units |
|---|---|---|---|---|
| Arsenic | 1.2 | ppm | 1 | ppm |
| Cadmium | 0.92 | ppm | 0.3 | ppm |
| Copper | 8.7 | ppm | 0.3 | ppm |
| Iron | 250 | ppm | 1 | ppm |
| Lead | Not Detected | ppm | 1 | ppm |
| Manganese | 3.6 | ppm | 0.1 | ppm |
| Mercury | Not Detected | ppm | 1 | ppm |
| Molybdenum | Not Detected | ppm | 0.4 | ppm |
| Zinc | 32 | ppm | 0.3 | ppm |

| Animal/Source | Specimen | Specimen Type |
|---|---|---|
| S2505381-01 | B | Liver Tissue |

| Analyte | Result | Units | Rep. Limit | Units |
|---|---|---|---|---|
| Arsenic | Not Detected | ppm | 1.1 | ppm |
| Cadmium | 3 | ppm | 0.32 | ppm |
| Copper | 15 | ppm | 0.32 | ppm |
| Iron | 520 | ppm | 1.1 | ppm |

**HEAVY METAL SCREEN**

| Animal/Source | Specimen | Specimen Type | | | |
|---|---|---|---|---|---|
| Lead | | Not Detected | ppm | 1.1 | ppm |
| Manganese | | 1.2 | ppm | 0.11 | ppm |
| Mercury | | Not Detected | ppm | 1.1 | ppm |
| Molybdenum | | Not Detected | ppm | 0.43 | ppm |
| Zinc | | 31 | ppm | 0.32 | ppm |
| S2505381-01 | C | Liver Tissue | | | |

| Analyte | Result | Units | Rep. Limit | Units |
|---|---|---|---|---|
| Arsenic | Not Detected | ppm | 0.98 | ppm |
| Cadmium | 9.3 | ppm | 0.29 | ppm |
| Copper | 49 | ppm | 0.29 | ppm |
| Iron | 280 | ppm | 0.98 | ppm |
| Lead | Not Detected | ppm | 0.98 | ppm |
| Manganese | 2 | ppm | 0.098 | ppm |
| Mercury | Not Detected | ppm | 0.98 | ppm |
| Molybdenum | Not Detected | ppm | 0.39 | ppm |
| Zinc | 48 | ppm | 0.29 | ppm |

**CAHFS Fee Increase**

Effective May 1, 2025, CAHFS will increase necropsy fees and implement a 12% increase in laboratory fees (including disposal fees) due to inflation and rising service costs. For more information, please visit the CAHFS website: https://cahfs.vetmed.ucdavis.edu/

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WASHINGTON STATE UNIVERSITY
Washington Animal Disease Diagnostic Laboratory

**Accession Number:** W252190062
**Account Number:** 10191

**Testing Lab:** WADDL - Pullman
**Case Coordinator:** Kevin Snekvik, DVM, PhD, DACVP
**Date Received:** 08/07/2025
**Report Date:** 08/15/2025

**Client:** California Animal Health & Food Safety (CAHFS) - Davis
620 W Health Science Dr
Davis, CA 95616
**Veterinarian:** Beate Crossley

# PRELIMINARY REPORT

**Animal ID:** S2505381 actinopteri :: NFS

## MOLECULAR DIAGNOSTICS

**Test:** Viral hemorrhagic septicemia virus PCR [1]

| Animals::Specimens | Result |
|---|---|
| S2505381 :: S2505381-01.0025 :: Kidney :: Fresh | Not Detected |
| S2505381 :: S2505381-01.0026 :: Kidney :: Fresh | Not Detected |
| S2505381 :: S2505381-01.0027 :: Kidney :: Fresh | Not Detected |

**Footnotes**

**1:** Viral hemorrhagic septicemia virus PCR performed using USDA-NVSL procedures, which detects all genotypes of VHSV.

**Authorized by:** Dr. Kevin Snekvik, DVM, PhD, DACVP
Section Head

**Notice**: *This report contains information that is confidential and is intended for the use of the individual or entity named on page 1. If you have received this report in error, please notify WADDL staff immediately.*