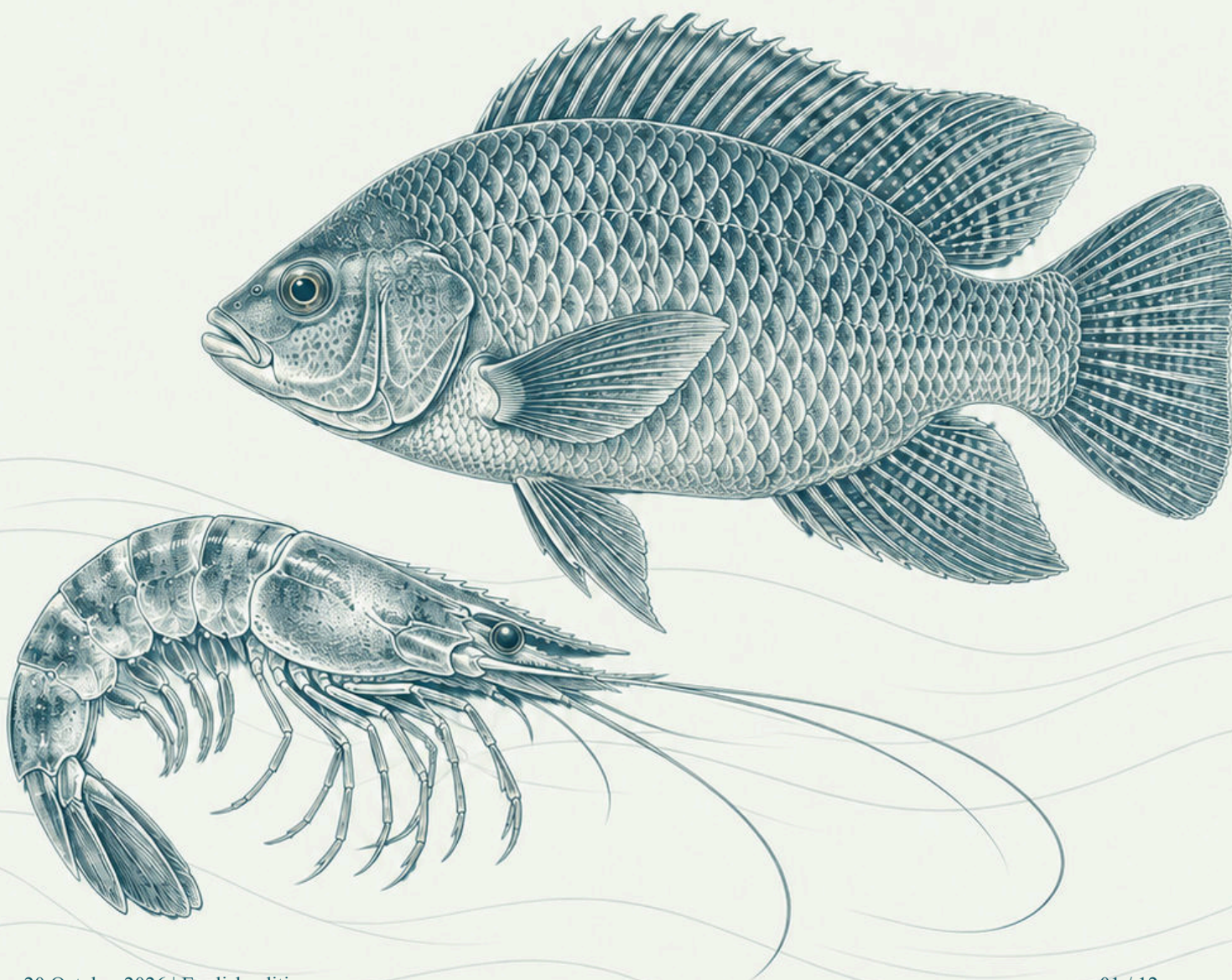


PHILIPPINES / 2026

Aquatic Disease Testing & Monitoring Handbook

qPCR / RT-qPCR

Laboratory services | Test panels | Sample submission | Treatment





01 Aquatic Diagnostic Services

Fish, shrimp and crabs | qPCR / RT-qPCR

We provide qPCR and RT-qPCR testing for pathogens in fish, shrimp, crabs and other aquatic animals, supporting pre-purchase screening, routine monitoring and disease investigations.



Same-day reports

Reports are issued the same day for samples received **before 12 noon.**

Free sample preservation tubes

Available to all clients. Tissue samples in these tubes can be transported and stored at room temperature for **72 hours.**

2 Aquatic tissue homogenizers	10 Automated nucleic acid extractors	6 qPCR instruments
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All qPCR instruments are from leading international brands, including Bio-Rad, USA. Homogenization produces a more uniform tissue sample for nucleic acid extraction.

Laboratory work areas are strictly separated to prevent cross-contamination. All staff complete rigorous training before starting work. **70% of staff hold doctoral degrees in veterinary medicine.**



02 Shrimp

Whiteleg shrimp / Black tiger shrimp

Seedstock panel: WSSV + AHPND (EMS investigation) + EHP + IHHNV

WSSV: white spot syndrome virus; AHPND: testing for *Vibrio* that cause acute hepatopancreatic necrosis disease; EHP: *Enterocytozoon hepatopenaei*; IHHNV: infectious hypodermal and hematopoietic necrosis virus. EMS means early mortality syndrome. AHPND causes some, but not all, EMS cases. Early deaths also require checks for other infections and water quality problems.

When to test	Recommended tests	Purpose
Each seedstock batch Before shipping or stocking	WSSV + AHPND (EMS investigation) + EHP + IHHNV	Check the batch being purchased for these four pathogen groups.
Feed refusal or rising deaths Submit the same day	WSSV + AHPND (EMS investigation) Also request histopathology, bacterial tests and water quality checks. Add EHP for slow growth.	Investigate red bodies, empty stomachs or intestines, hepatopancreas changes and deaths.
Slow growth or marked size differences	EHP + IHHNV Review feed, growth and water quality records.	Check for infection while also investigating feed and water quality problems.
Before grading, pond transfer or resale	If batches have been mixed or signs of illness have appeared, repeat the four-test seedstock panel .	Test the batch being moved. Do not rely only on reports issued before mixing or illness.

Tissues and sites to submit

WSSV / IHHNV: Gills and swimming legs (pleopods).

AHPND / EHP: AHPND: stomach and hepatopancreas; EHP: hepatopancreas.

Additional tests and positive results

If the black tiger shrimp supplier has a history of monodon baculovirus (MBV) or yellow head virus genotype 1 (YHV-1), add the previously detected virus. An initial IHHNV-positive result needs confirmation: similar fragments in the shrimp's own genetic material can also produce a positive result.



03 Tilapia

Pre-purchase screening and disease investigation

Before purchase: TiLV + gill and skin parasites

Tilapia lake virus (TiLV) can cause deaths. For bulging eyes, circling or rising deaths, test for TiLV, Streptococcus agalactiae and Streptococcus iniae together.

When to test	Recommended tests	Purpose
Each batch of juveniles Before shipping or arrival	TiLV + gill and skin parasites Add S. agalactiae and S. iniae if the supplier has a history of streptococcal disease.	Check for virus and parasites; include streptococci when the supplier has a disease history.
Bulging eyes, circling or rising deaths Submit the same day	TiLV + S. agalactiae + S. iniae Also request bacterial identification, susceptibility testing and water quality checks.	These signs can result from viral or bacterial infection, so check both.
Surface gasping, gill changes or skin lesions	Water quality + gill and skin parasites Add bacterial tests for bleeding, ulcers or continuing deaths.	Distinguish low oxygen and other water quality problems from parasites and bacterial infection.
Before pond transfer, mixing or resale	Review this batch's TiLV report. After recent illness, retest for previously detected pathogens and investigate current signs.	Establish the cause of recent illness before moving affected fish to other ponds.

Tissues and sites to submit

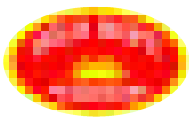
TiLV: Liver, brain and eyes.

Streptococci / Parasites: Streptococci: brain, kidney and spleen; parasites: gills and skin.

Information to send with samples

Provide temperature changes, when feeding declined or stopped, daily death counts and photos of bulging eyes or abnormal swimming. To guide antibiotic selection, request bacterial identification and antimicrobial susceptibility testing to find out which drugs the bacteria are susceptible to.

References: WOAHS TiLV | Philippine streptococcal study | UF/IFAS streptococcal disease



04 Grouper

State the grouper species or hybrid when submitting samples

Before purchase: NNV + gill and skin parasites

Nervous necrosis virus (NNV) can cause circling and loss of balance. Check NNV and parasites before purchase. Review the supplier's earlier reports to decide whether other virus tests are needed.

When to test	Recommended tests	Purpose
Each batch of juveniles Before shipping or arrival	NNV + gill and skin parasites If the supplier previously detected RSIV, ISKNV or SGIV, add that virus.	Check purchased juveniles for viruses and parasites.
Circling, loss of balance or abnormal buoyancy Submit the same day	NNV + bacterial tests Add streptococcal tests for bulging eyes or bleeding.	Distinguish viral from bacterial causes of abnormal swimming.
Darkening, pale gills or internal lesions Submit the same day	RSIV + bacterial identification and susceptibility testing + water quality Add ISKNV or SGIV if previously detected at the farm or supplier.	Several diseases can cause these signs. Add histopathology for spleen or other internal lesions.
Before grading, cage transfer, mixing or sale	After a positive result, retest for detected pathogens and check parasites . For recent illness without earlier positives, use the symptom-based tests above.	Check whether the batch being moved still has health problems.

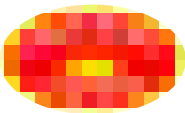
Tissues and sites to submit

NNV: Brain and eyes.

Iridoviruses / Bacteria: Iridoviruses: spleen and kidney; bacteria: internal organs and affected tissues.

Which iridovirus test?

Red sea bream iridovirus (RSIV), infectious spleen and kidney necrosis virus (ISKNV) and Singapore grouper iridovirus (SGIV) are separate tests. Attach earlier positive reports. If none are available, describe the signs and fish source so the laboratory can select tests.



05

Asian seabass

Barramundi / Lates calcarifer

Before purchase: NNV + gill and skin parasites

Screen juveniles for nervous necrosis virus (NNV). Add Streptococcus iniae for circling, loss of balance or bulging eyes. Add scale drop disease virus (SDDV) for abnormal scale loss with skin erosion or deaths.

When to test	Recommended tests	Purpose
Each batch of juveniles Before shipping or arrival	NNV + gill and skin parasites If the supplier previously detected RSIV or ISKNV, add that virus.	Check purchased juveniles for viruses and parasites. Attach the supplier's reports.
Circling, loss of balance or bulging eyes Submit the same day	NNV + S. iniae Also request bacterial identification, susceptibility testing and water quality checks.	Investigate viral or streptococcal causes of abnormal swimming, bulging eyes and deaths.
Scale loss, skin erosion or gill changes Submit the same day	Bacterial tests + histopathology Add SDDV for scale loss with erosion or deaths. For pale gills or spleen changes, the laboratory selects RSIV or ISKNV testing.	Examine skin and internal lesions to distinguish viral infection, bacterial infection and injury.
Before pond or cage transfer, mixing or sale	After a positive result, retest for detected pathogens and check parasites . For recent illness without earlier positives, use the symptom-based tests above.	Check the batch being moved and report recent mixing or illness.

Tissues and sites to submit

NNV / Streptococci: NNV: brain and eyes; streptococci: brain, kidney and other internal organs.
Iridoviruses / Histopathology: Iridoviruses: spleen and kidney; scale-loss cases also require affected tissues.

When to add other virus tests

RSIV is red sea bream iridovirus; ISKNV is infectious spleen and kidney necrosis virus. Add whichever was previously detected at the farm or supplier, and attach the original report. Add SDDV for abnormal scale loss with erosion or deaths, or if the supplier previously detected SDDV.

References: Philippine NNV study | S. iniae cases | RSIV guide | Original SDDV study



06 Milkfish

Chanos chanos

Before purchase: appearance, activity + parasites + water quality

Check appearance, activity, gill and skin parasites, and water quality records before purchase. For bleeding, ulcers or deaths, add bacterial tests and histopathology to investigate the cause.

When to test	Recommended tests	Purpose
Each batch of juveniles Before shipping or arrival	Appearance and activity + gill and skin parasites Review the source and water quality records.	Identify visibly weak or sick juveniles and assess health before stocking.
Surface gasping, breathing difficulty or gill changes Submit the same day	Water quality + gill and skin parasites Add histopathology if signs persist.	Distinguish water quality problems, parasites and other gill disease.
Bleeding, ulcers or rising deaths Submit the same day	Bacterial identification and susceptibility testing + histopathology + water quality	Investigate the cause; the laboratory then determines whether pathogen nucleic acid tests are needed.
Before grading, pond transfer or resale	Recheck appearance, activity and parasites After recent illness, retest for previously detected pathogens.	Assess recovery after treatment and the batch's current health.

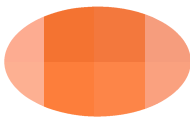
Tissues and sites to submit

Parasites / Gill disease: Gills, skin and affected tissues.

Bacteria / Histopathology: Kidney, other internal organs and affected tissues. Confirm tissues before adding nucleic acid tests.

Are nucleic acid tests needed?

If a virus was previously detected at the farm or supplier, provide the report and request that virus test. If the cause remains unknown, the laboratory selects nucleic acid tests using the signs, bacterial findings and histopathology.



07 Mud crab

Scylla spp.

Before arrival: WSSV + appearance, gills and body surface

Apparently healthy crabs can carry white spot syndrome virus (WSSV). Before arrival, check the virus as well as gill fouling, parasites and shell disease.

When to test	Recommended tests	Purpose
Before introducing broodstock, crablets or juveniles	WSSV + appearance + gill and body-surface parasites	Check WSSV and the condition of the body, gills and surface.
Feed refusal, weakness or rising deaths Submit the same day	WSSV + bacterial tests + water quality	Investigate WSSV, bacterial infection and water quality problems together.
Black gills, heavy fouling or shell disease	Gill and body-surface microscopy + bacterial tests Add WSSV if deaths occur or after mixing with new batches.	Distinguish parasites, gill fouling and bacterial infection.
After holding Before transfer or sale	If batches have been mixed or signs of illness have appeared, check WSSV, gills and body surface . Add bacterial tests for shell disease or deaths.	Check the batch being moved or sold. Do not rely only on reports issued before holding.

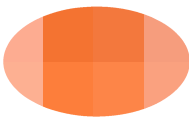
Tissues and sites to submit

WSSV: Gills and other suitable crab tissues.

Parasites / Bacteria: Gills, surface fouling, affected shell and other lesions.

Information to send with samples

State species, size, source, holding duration, recent moulting and daily death counts. Include clear photos of black gills, shell lesions or unusual fouling.



08

Giant freshwater prawn

Macrobrachium rosenbergii

Before purchase: MrNV + appearance and activity

Macrobrachium rosenbergii nodavirus (MrNV) is the main pathogen in white tail disease. Extra small virus (XSV) can be tested alongside it to help investigate cases.

When to test	Recommended tests	Purpose
Before broodstock enter the hatchery or juveniles are shipped	MrNV + appearance and activity Include XSV when investigating white tail disease.	Check broodstock and the juvenile batch being sold for MrNV.
White abdominal or tail muscle, or deaths Submit the same day	MrNV + XSV Also request histopathology and water quality checks.	Investigate whether white muscle, weakness and deaths are linked to white tail disease.
Continuing unexplained deaths	MrNV Add bacterial tests or histopathology according to the signs.	Investigate the deaths; white muscle and deaths can also have other causes.
Before grow-out, grading or reshipment	If batches have been mixed or signs of illness have appeared, retest MrNV . Also retest XSV if previously positive.	Test the actual batch being moved and provide recent disease and treatment records.

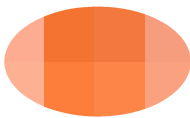
Tissues and sites to submit

MrNV / XSV: Abdominal muscle; small juveniles may be submitted whole.
Other checks: Describe external or internal lesions and confirm which tissues to submit.

Interpreting white tail disease results

Diagnosis centres on MrNV testing, considered alongside white muscle, deaths and histopathology. XSV helps the investigation; an XSV-positive result alone does not diagnose white tail disease.

References: WOA white tail disease | Official white tail disease guide | SEAFDEC diagnostic services



09 Common carp / Koi

Cyprinus carpio

Before introduction: KHV + gill and skin parasites

Koi herpesvirus (KHV) testing applies to common carp and koi. Check KHV before introducing new fish. For gill lesions, breathing difficulty or deaths, also check parasites and water quality.

When to test	Recommended tests	Purpose
Each new batch Before introduction or arrival	KHV + gill and skin parasites Review the source and recent disease records.	Check the actual incoming batch for KHV and parasites.
Mottled gills or breathing difficulty Submit the same day	KHV + gill parasites + water quality Also request histopathology.	Investigate viral, parasitic and water quality causes of gill necrosis, sunken eyes or deaths.
Rubbing, excess mucus or ulcers	Gill and skin parasites + water quality Add bacterial identification and susceptibility testing for ulcers or bleeding; add KHV for gill disease or deaths.	Find the cause of skin and gill problems to guide management and treatment.
Before mixing, transfer or resale	After a positive result, retest for detected pathogens and check parasites . For recent illness without earlier positives, use the symptom-based tests above.	Assess health during quarantine and retain each batch's source records and reports.

Tissues and sites to submit

KHV: Gills and kidney.

Parasites / Bacteria: Gills, skin and affected tissues.

Information to send with samples

Record water temperature, when new fish arrived, breathing or gill changes and daily death counts. Attach earlier KHV reports for this batch to help compare results.

References: UF/IFAS KHV | Fish sample submission | PNS/BAFS 135:2025



10 Submission & Monitoring

Before purchase, when signs appear and before transfer

When	What to do
After confirming a purchase	Plan sample delivery around the shipping date. Confirm tests, receipt date and report timing, allowing time for any repeat testing.
Before each shipment or arrival	Test the actual batch being purchased or moved. On arrival, check reports, source and animal condition. Arrange new checks if the batch changes or new signs appear.
Daily checks and grading	Record feeding, activity, deaths and water quality daily. Contact the laboratory for slow growth, marked size differences or illness after sudden water quality changes.
The day signs appear	Contact the laboratory that day. Report when illness began, affected ponds, daily death counts and drugs already used.
After treatment Before pond or farm transfer	Agree a retest date with the laboratory. After recent illness or mixing new batches, retest for previously detected pathogens and investigate current signs.

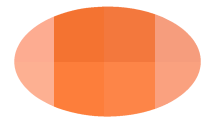
Information to send with samples

Category	Details
Farm and batch	Farm name, address and contact; pond or cage number, seedstock source, and recent introductions, mixing or transfers.
Animals and samples	Species, age or size, sample IDs, tissues and collection date. Identify the source pond for each sample.
Disease and treatment	When signs began, feeding, daily deaths, growth and water quality records; drugs used and the response to treatment.
Tests and delivery	Requested pathogens or panel and expected arrival time. Confirm sample types, preservation requirements and report timing before sending.

Test methods and reports

Pathogen detection uses qPCR or RT-qPCR; parasites are checked by microscopy. Histopathology examines tissue changes, and antimicrobial susceptibility testing helps guide antibiotic selection. Agree routine monitoring intervals with the laboratory based on the production stage and disease history. Sample labels, the sample list and submission form must use matching IDs. Interpret positive results alongside clinical signs and mortality. If tests are negative but deaths continue, contact the laboratory for further investigation.

References: PNS/BAFS 135:2025, Chapter 9 | UF/IFAS submission guide | SEAFDEC diagnostic services | DFO result interpretation



11 Treatment Reference

Identify the cause; use susceptibility results to select antibiotics

Disease / animals	Drug options	When to use
Streptococcosis Tilapia and other fish	Florfenicol or amoxicillin	Identify the causative bacterium and test its antimicrobial susceptibility before choosing one of these drugs.
Aeromonas septicemia Catfish and salmonids	Oxytetracycline	Use when susceptibility testing confirms sensitivity to oxytetracycline. Also assess feed intake, water quality and other infections.
Marine fish vibriosis Groupers and other fish	Oxytetracycline	Confirm Vibrio infection and select treatment based on susceptibility results. Improve water quality and reduce stress from transport or moving fish between ponds.
External protozoan infections in fish	Formalin	Use after confirming infections such as Trichodina, Chilodonella or Ichthyophthirius. Assess species tolerance and gill condition before treatment; maintain adequate dissolved oxygen.
Monogenean infections in ornamental fish Koi and others	Praziquantel	Use after confirming monogenean infection. Recheck for parasites after treatment to assess the response.
White spot disease (WSSV) Tilapia lake virus disease Viral nervous necrosis Koi herpesvirus disease	No specific medication	Isolate affected batches, restrict transfers between ponds or farms, and prevent contact with healthy batches. Antibiotics do not treat viral infections.
Enterocytozoon hepatopenaei (EHP) infection in shrimp	No established specific medication	Screen for EHP before purchasing postlarvae. Keep batches from different sources separate and improve rearing conditions.

During treatment

For bacterial disease, use antimicrobial susceptibility results to select an effective drug. Do not use antibiotics for routine prevention.

If animals stop feeding or treatment fails, review the diagnosis, feed intake and susceptibility results before changing treatment.

Follow the veterinarian's prescription for dose, duration, administration and withdrawal period. Record the pond, treatment start and end dates, and response.