Introduction to fish health and disease

THE FISH VET

Dr Richmond Loh

BSc BVMS MANZCVS (Aquatics) MANZCVS (Pathobiol) MPhil

thefishvet@gmail.com

Learning objectives

- Importance of aquatic animal health management
- Identifying disease – what to look for

Why are you here?

- The array of colours.
- You can create your own little world.
- Fish are cute.

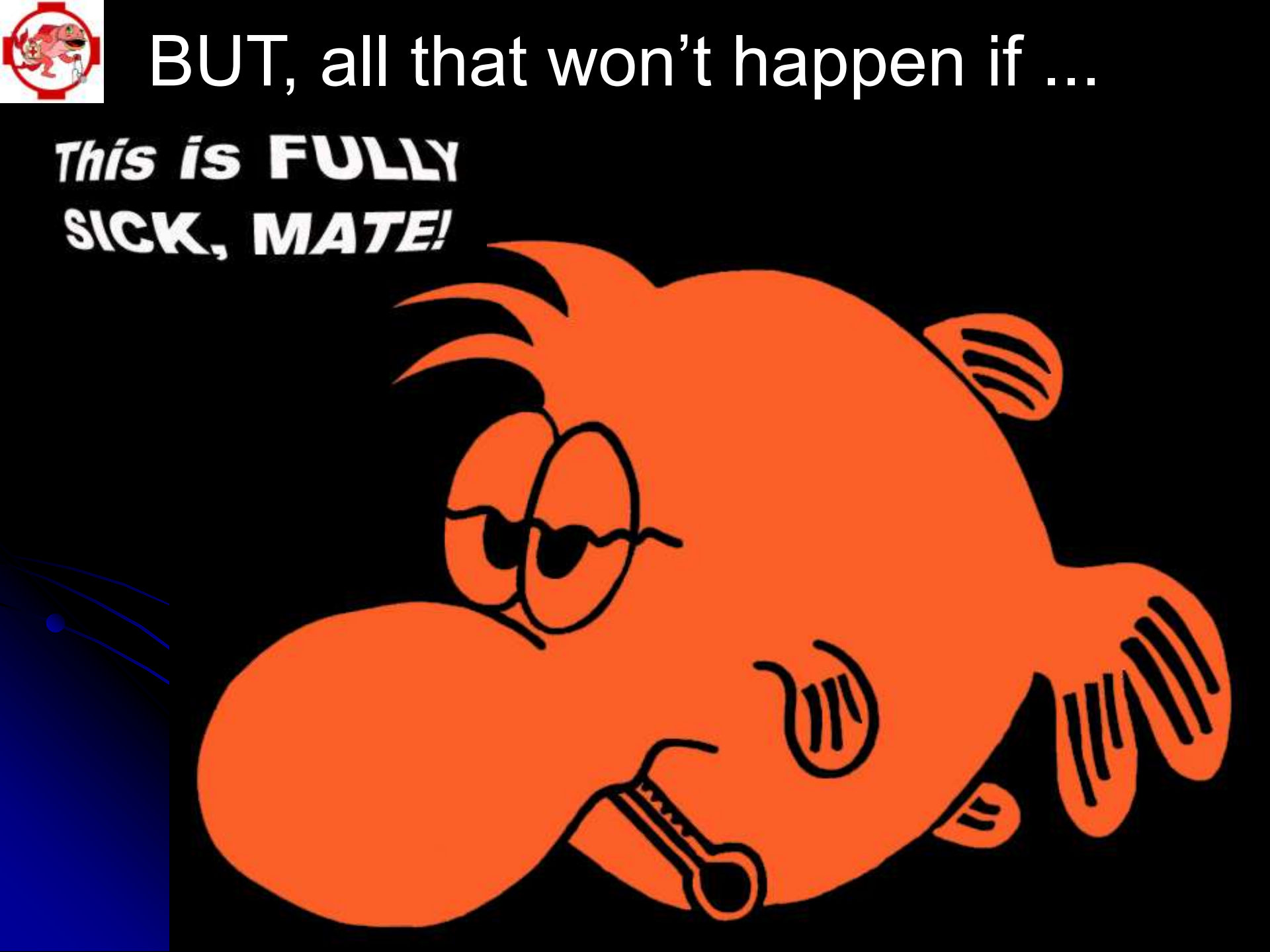
Why are you here?

- Fish make you popular!

Who's the man?

Crickey!

BUT, all that won't happen if ...




I’ve never added it up!
How much are health problems costing me?

The “sickening” cost

- Sick and dead fish costs money:
  - Loss of individual fish;
  - Unsightly dead fish in a tank;
  - Tank-mates succumb;
  - Unhealthy fish die soon after sold;
  - No repeat business;
  - Treatment costs (time and money);
  - Increased OHS risk to staff handling toxic chemicals (formalin, malachite green, etc.)

The “sickening” cost

- Sick and dead fish costs money:
  - Increased risk of disease spreading from ornamental to native fish and aquacultured food fish;
  - Increasing restriction by government regulation;
  - Development of drug resistance;
    - chloramphenicol, fluoroquinolones, ciprofloxacin and enrofloxacin targeted.
  - Bad publicity for the industry.

Where's the proof?

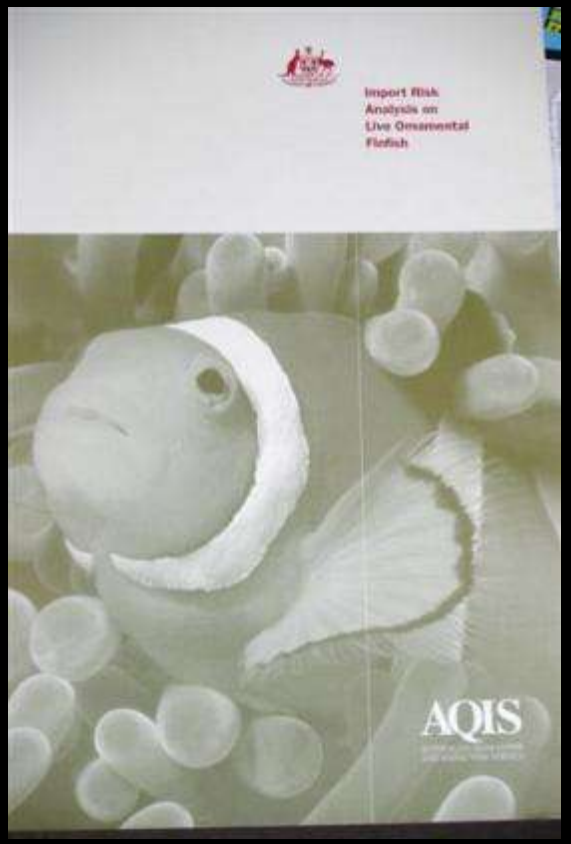
- The potential future impacts of the ornamental fish trade. Who will you be up against?
  - Conservation groups,
  - Welfare groups,
  - Established aquaculture industries,
  - Recreational and commercial fishermen.

- Why?
  - Invasive fish species,
  - Carriers of pathogens,
  - Pathogen threaten aquaculture & natives.
  - Propagule pressure (Multiple single rel) vs (Few Lge rel)

Established wild population of various cichlids at Hazelwood Pondage, Victoria.

Where's the proof?

- Proof is being gathered as we speak.
  - The Federal Dept Env. Herritage - review underway to assess impact of aquarium fish that have already established wild populations.
  - Biosecurity Australia reviewing Ornamental Fish Import Risk Assessment based on new information from an expert fish health committee.
  - e.g. Koi herpesvirus.
  - e.g. Gourami iridovirus in Murray Cod.



- AQIS
  - "*The established trade in live ornamental finfish will be permitted to continue under transitional arrangements until the new conditions are fully implemented.*"

Industry risk & response

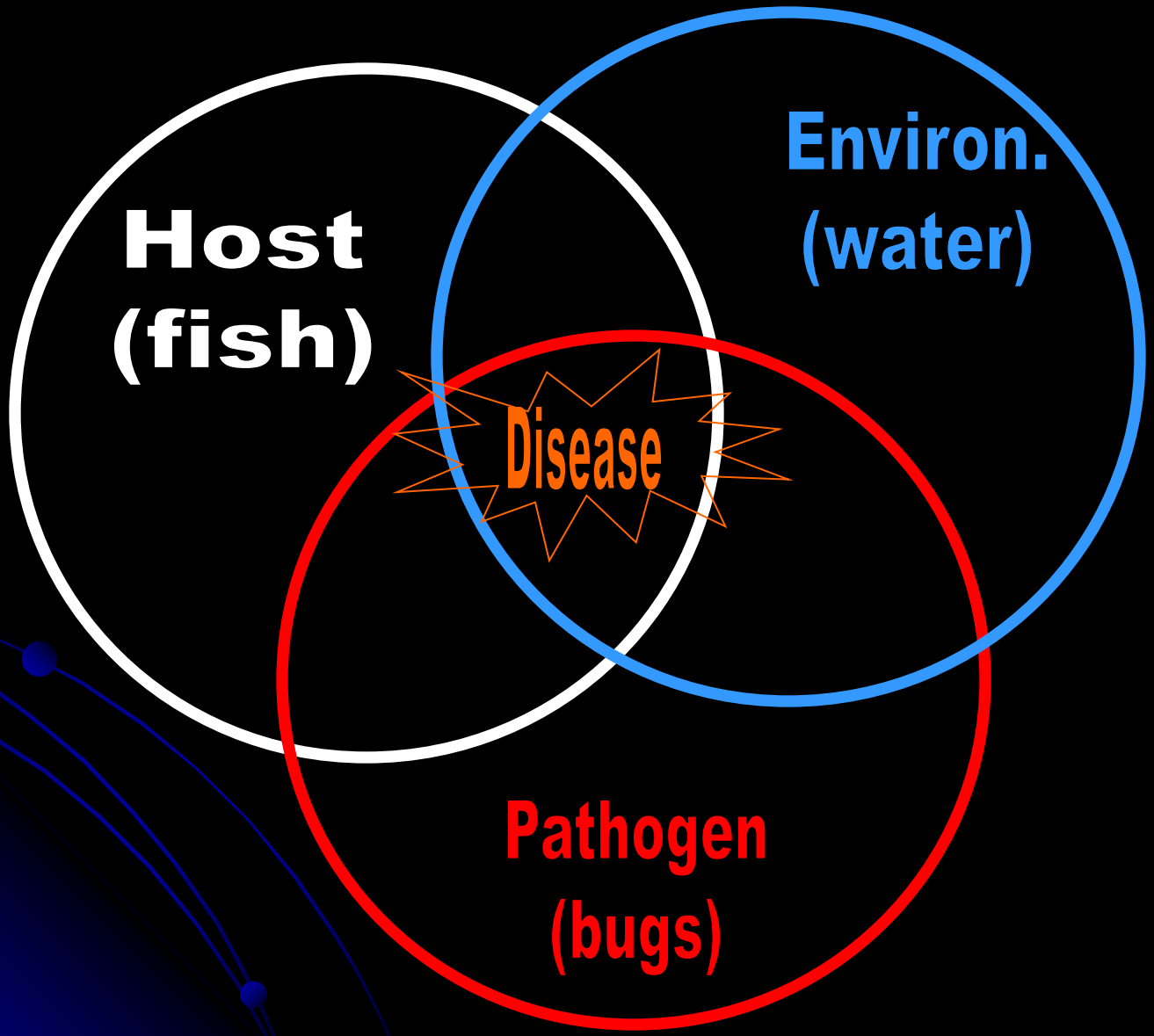
- Could lead to **more regulation** & **greater restrictions** on the ornamental industry.
- Not all doom and gloom.
- To minimise government intervention, as an industry, we need to demonstrate pro-active effective self-regulation.

How can we be Pro-Active?

- Participation in workshops like this, the industry demonstrates it is serious about putting best practice management in place.
- Encouraging employees to become trained (certificate IV course under development).
- Power of education can raise community awareness to ensure the ornamental fish industry can be seen in a positive light:
  - caring, responsible and accountable.

It doesn't come in a tub of margarine.

Disease Hulla Hoops



Signs of Disease
What to look for?

- Knowing “normal” versus “abnormal” for the species & breed.
  - Body conformation (symmetry, pop-eye, swellings),
  - Colour (dark, pale, dull, mucoid),
  - Swimming pattern (upside down, angled, slow),
  - Behaviour (flashing, jumping, separating from grp),
  - Feeding behaviour (depressed),
  - Breathing (slow, fast, gasping),
  - Temperament (hide, shy),
  - Lesions (lumps, ulcers, growths),
  - Parasites (worms, protozoans).

Signs of Disease: Mortalities

- Key factor - Speed of kill.
  - Sudden (overnight) = acute event.
    - Tend to be water quality related non-infectious disease or toxic event (DO, NH_3, NO_2, Cl_2, etc.)
  - Slow = chronic event.
    - Increasing mortalities.
    - Tend to be infectious disease.

Signs of Disease: Behavioural changes

- Gasping/piping at the surface;
- Gathering at water inlets;
- Can mean:
  - Fish struggling for oxygen (low DO);
  - Elevated nitrite levels (MHb);
  - Diseased gills (mucus and hyperplasia) from parasites.

Signs of Disease: Swimming style

- Backstroke?

- Loss of control.

Signs of Disease: Swimming style

- Flashing or jumping.
  - Usual suspects - skin irritation from parasites, chemicals or running from a big scary bully!

- This is scratching without hands.

Signs of Disease: Body shapes

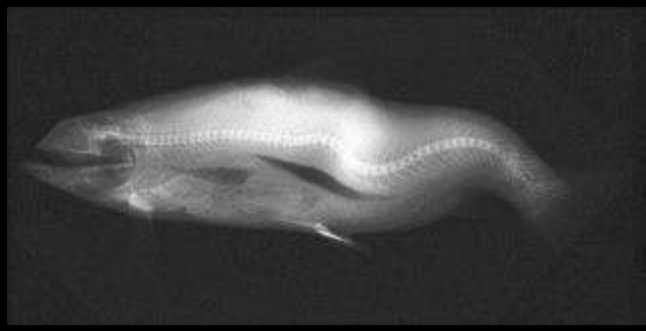
- Overfed?

Malnourished?

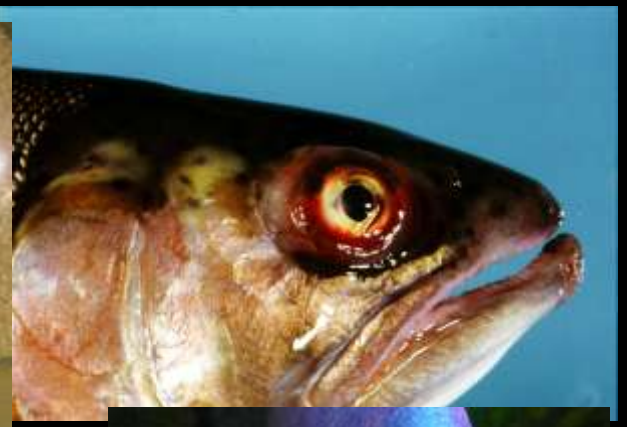
Signs of Disease: Body shapes

- Fluid/Air?

- Deformity



Signs of Disease: Eye Damage



R.Reuter

Signs of Disease: Fin Damage

Signs of Disease: Spots and ulcers.

Signs of Disease: Lumps, Bumps & Growths

Signs of Disease: Increased respiration

- Fish use operculum to pump water past gills to assist:
  - Oxygen uptake;
  - Carbon dioxide loss;
  - Ammonia excretion;
  - Electrolyte exchange.

- If there is imbalance in any of these, fish will respond by increasing opercula rate to compensate for reduced efficiency of gill function.

Signs of Disease: Fin Clamping

- Sick fish often pull their fins in when sick.

- They often become listless or sit on the bottom of the tank.

Signs of Disease: Colour

- They may take on a darker appearance.

- They may separate from the group or get bullied.

- Or worse still…. Get cannibalised!

Signs of Disease: Parasites

Signs of Disease: Can You Make a Diagnosis?

- No, it is just one part of the investigation.
- As illustrated, fish have limited range of ways of expressing that they are unwell.
- More detective work is needed to determine the cause of the problem.
- The first step is recognising you have a problem and then record the changes.

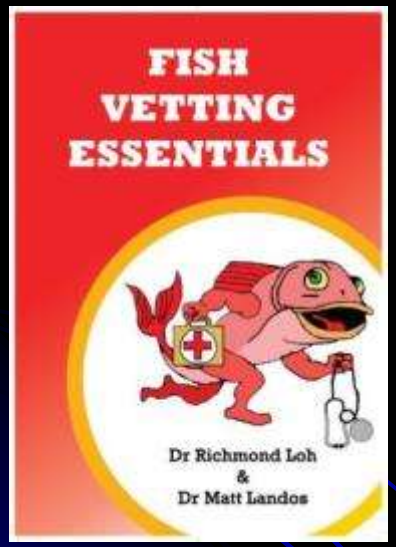
Sh!t waiting to happen!

THE FISH VET

Dr Richmond Loh

BSc BVMS MANZCVS (Aquatics & Pathobiol) MPhil

thefishvet@gmail.com



thefishvet.com.au

@thefishvet

thefishvet.wordpress.com

au.linkedin.com/pub/dir/Richmond/Loh

youtube.com/user/TheFishVetDrLoh

facebook.com/thefishvetdrloh

Special thanks to
Dr Matt Landos