

Getting Started on the Right Foot - Considerations for Healthy Ponds and Fish

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Getting started on the right foot towards a healthy system and healthy animals is as simple as 1-2-3.

- **Point A: What do we possess**
 - A desire
 - An interest
 - The know-how or experience
 - Time
 - Space
 - Money
- **Point Z: What do we desire**
 - Healthy Systems
 - Healthy Animals

How do we get from point A to point Z?

We travel the Critical Path to Fish Health

10 steps to healthy systems - healthy fish

1. **DEFINE** your goals
2. **LEARN** about your animals
3. **PLAN** for healthy animals
4. **UNDERSTAND** how water quality affects your animals
5. **IDENTIFY** reliable resources
6. **PRACTICE** biosecurity
7. **PRACTICE** daily health management
8. **RECOGNIZE** disease
9. **WORK** the problem
10. **RE-EVALUATE** continuously

The Critical Path to Fish Health – In detail

Step 1: **DEFINE** your goals

- Fully understand the scope of care involved in maintaining aquatic animals and their environment.
- Understand the commitment required towards being a responsible pet owner.
- Fully understand the financial commitment required.
- Fully understand the time requirements for maintaining healthy aquatic animals.
- Fully understand your level of operations.

The keys to achieving the before mentioned goals:

- Research
- Ask questions - Professionals, experienced hobbyists
- Join a club
- Trial and error - Keep records

NEVER go at it blindly or uninformed!

Step 2: **LEARN** about your animals

- **Knowledge of your fish (biology and natural environment)**
- **Use quality information sources**
- **Web Resources (edu.gov.use .org and .com with care!)**

Step 3: **PLAN** for healthy animals

- **System Design**
- **Quarantine !!!!!**
- **Develop a regular maintenance schedule**
 - **Procrastination leads to disaster**
- **Water Quality**
 - **Daily:** Check water temperature
 - **Weekly:** Check pH, ammonia (NH₃) Nitrite (NO₂) alkalinity, salinity, & dissolved oxygen (DO₂)
 - **Monthly:** Check nitrates (NO₃) & hardness
 - **RECORD ALL INFORMATION!!**

Step 4: **UNDERSTAND** how water the quality parameters affects your animals

Step 5: IDENTIFY reliable resources for animals, equipment and information

- **Fish and plant source reliability**
- **Equipment reliability**
- **Assessing reliability of information**
 - **Credibility**
 - **Accuracy**
 - **Reasonableness**
 - **Support**

Step 6: PRACTICE BIOSECURITY

- Biosecurity is the preventive measures taken against disease introductions and outbreaks.
- Reduces the numbers of disease causing organisms in the environment.
- Specific measures that vary at each facility.
- Biosecurity is a way of thinking.
- Addresses all aspects of animal care

Step 7: PRACTICE DAILY HEALTH MANAGEMENT

Health Management - defined

- Management practices designed to prevent disease among captive fish and invertebrates.
- Two major goals:
 - To maximize immune competence in the fish populations.
 - Reduce or eliminate potential pathogens and other disease causing factors

Why do we Quarantine?

- Isolation of new animal(s) to prevent disease introduction into existing population
- Providing a quiet stress-free area for acclimation and/or recuperation
- Acclimation to new feeds
- Acclimation to new water parameters
- Introduction to new husbandry protocols

QUARANTINE IS CRITICAL FOR KEEPING YOUR PETS HEALTHY

QUARANTINE EVERYTHING!!!

Quarantine protocols

- Quarantine for a **MINIMUM** of 30 days, pond fish may be up to 90 days
- Monitor animals daily for signs of distress & disease
- Carry out a basic physical examination
- Address any existing disease conditions

Transport and Acclimation protocols

Transporting the fish

- Appropriate techniques for the animals
- Low density is the best
- Aeration/oxygen
- In water
- Properly insulated
- Packed to avoid trauma during
- Water additives

Acclimating the fish

- Slowly acclimating the fish to the temperature & pH of the new system is important
- Understanding what's going on in the transport bag is just as important
- More than one method of acclimation is practiced
- With every type of acclimation the following are top priorities
 - Getting the fish out of the transport bag & away from the high levels of ammonia within that bag as soon as possible
 - Slowly acclimating the fish to the new water parameters, specifically pH
- **NEVER** adding transport bag water to the quarantine system

Water Quality & Health Management protocols

- Weekly at least 10% water changes
- Partial water changes are also an important part of maintaining healthy systems - healthy fish
- Water should be replaced with dechlorinated water
- Water changes should be carried out immediately in the event of ammonia or nitrite spikes and/or chlorine toxicity.

Nutrition & Health Management protocols

- Use only high quality feeds
- Variety is the spice of life
- Consider Fall and Spring feeding regimes
- Provide fresh vegetables/fruits for herbivorous fish
- Check dates on feed
- Buy feed in 1-6 month increments

- Store feeds in refrigerator or freezer
- Don't feed moldy or damp food

Step 8: **RECOGNIZE** disease

Recognition and response to diseases

- Watch the fish closely
- Look for signs of disease
- Respond early and quickly
- Learn, become aware of what is normal or abnormal for your fish

Diagnosis: Signs of disease

<ul style="list-style-type: none"> • Off feed • Lethargy • Increased respiration • Isolation from group • Flaring of gill covers 	<ul style="list-style-type: none"> • Excessive mucus production • Thin • Popeye • Changes in the eye surface • Blood in eye(s)
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Diagnosis: How & Who

- A proper diagnosis is mandatory before initiating a treatment.
 - Initiating a treatment w/o a proper diagnosis can be harmful
- You can learn how to do a **basic** health examination (A good microscope is mandatory) from the following sources:
 - Fish Health Professional
 - Veterinarian

Step 9: **WORK** the problem

- **DON'T PANIC!!! RELAX!!!**
 - Identify the specific problem(s)
 - Act on the most life threatening problems first
 - Avoid shotgun "treatments"
 - **Working the problem: Assistance with husbandry and general health assessments**
 - Koi Health Advisors – check with your local koi club
 - Diagnosis of issues and disease management strategies: Local Veterinarians
 - See list of veterinarians in WA and OR that treat pet fish
 - Dr. Tim Miller-Morgan, DVM – Extension Veterinarian, OSU
 - Local diagnostic laboratories accepting koi
- Veterinary Diagnostic Laboratory**
Magruder Hall, Room 134, 30th & Washington Way

Corvallis, OR 97331
Phone: (541) 737-6817 Fax:(541) 737-6817
Dr. Jerry Heidel, DVM, PhD, DACVP, Director, VDI

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155 N. Bustad Hall,
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Phone: (509) 335-9696 Fax: (509) 335-7424
Dr. Kevin Snekvik, DVM, Head, Aquatic Services

Working the problem: Treatment protocols

- **Optimally - should have a hospital tank**
- **Most health problems can be addressed by:**
 - Addressing husbandry issues
 - Warming the affected fish
 - Over-the-counter medications (salt, potassium permanganate, formalin)
- **Treatment: Antibiotics**
 - Antibiotics are generally only for the treatment of bacterial infections
 - Antibiotics should be used with caution and only with a proper diagnosis
 - Once antibiotic therapy is started
 - Proper dose
 - Proper length of time - 7-10 days minimally
 - Antibiotics DO NOT cure bacterial infections
 - Antibiotics are an adjunct to the fish immune system
 - With a proper diagnosis, multiple antibiotics are rarely needed.
 - In appropriate use of antibiotics has and will lead to antibacterial resistance.

Step 10: RE-EVALUATE continuously

- Status/health of your fish and systems
- Effectiveness of SOP's
- Effectiveness of any treatment
 - Always recheck the fish after any treatment to assess elimination of the disease.

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