

# Techniques for Fish Health

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www.pondrx.com | www.fishdoc.net

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## Introduction



- Intent: To teach and demonstrate most of the vital techniques for diagnosing and treating disease in Koi.
- I have been a fish keeper since 1973, I earned my DVM from UGA in 1991 and have treated fish professionally since 1993.

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## Topics of Discussion



- Handling Fish
- Exam of fish
- Biopsy of fish
- Using a scope
- Injection of fish
- Anesthesia
- Wound management
- Necropsy of fish

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## Handling



- Handling is a stressor.
- The body slime is home to the parasites.
- Do not touch the ventral surfaces of the fish to be biopsied.
- **Never** carry a fish in a net! Bowl it instead!

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## Exam of fish



- Body should be uniform and firm.
- Examine at the base of fins for parasites.
- Examine gills: Steak red!
- Slime coat should be uniform – 100%

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## Biopsy of fish



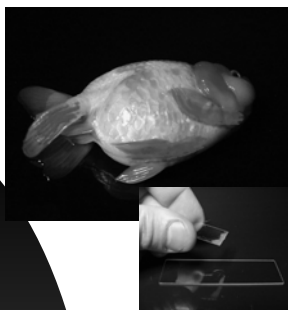
- Touch fish as little as possible
- Nets and hands remove slime coat – where parasites live!
- Scrape aggressively
- Cannot cut yourself with broken coverslip.
- Plastic coverslips are preferable!

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## Body Scrape



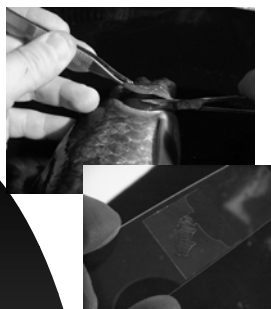
- Scrape on the bottom of the fish
- Scrape from head to tail
- Scrape from base of tail to tip of tail
- Put drop of water on slide.
- Longevity of slide prep!

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## Gill Snip



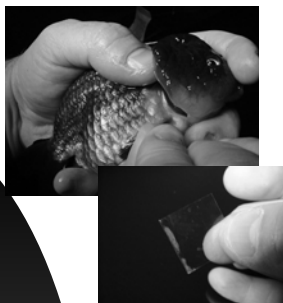
- Aggressive
- Fish can bleed
- Not usually necessary
- Take only the very tips
- Do not squash the prep under the coverslip

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## Gill Scrape



- Fast and relatively easy
- Nominal bleeding
- More surface area from gill is biopsied
- No cutting – Less Liability

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## The Scope



- Moderate power
- Binocular is not necessary
- Start with lowest power
- Start with smallest ID aperture
- Make sure power is on

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## The oculars



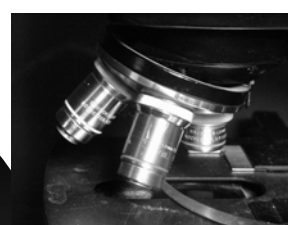
- They provide PART of the magnifying power of the microscope
- Make sure they aren't steamed
- Position well for your eyes.
- One is adjustable in binocular scopes.

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## The optics



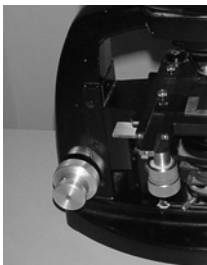
- The SMALLEST one is the lowest power
- The longest one is the highest power
- Start with the lowest for survey
- Switch to higher powers for detail.

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## The Adjustment



- With most scopes there are two knobs
- Coarse adjust moves the optics up and down quickly.
- Fine adjust focuses the optics finely.
- Find these on your scope.

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## Buying a Scope



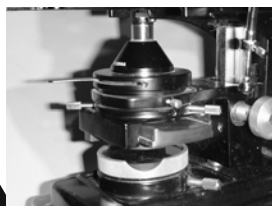
- Monocular is fine
- Glass optics are nicer
- Disc diaphragm is okay
- No fine adjust okay
- BUILT IN LIGHT SOURCE – no mirrors
- Up to 400X power good

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## The ID Aperture



- This is an adjustable iris diaphragm
- Sometimes it's a disc with holes in it – choose the smallest for more contrast.

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## Setting Up The Scope

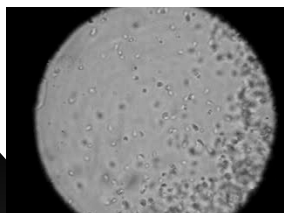
- Turn it on
- Adjust the light to the lowest setting
- Adjust the Iris Diaphragm to the lowest or smallest aperture to allow the least light.
- Adjust the scope to the smallest (lowest power) Optic Turret.
- Place sample slide on stage and Focus on the edge of the slide's coverslip.

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## Costia



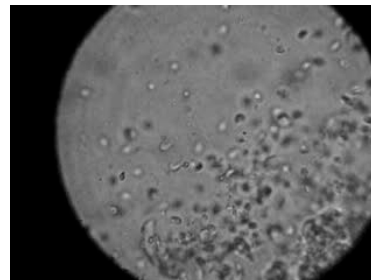
- Minuscule
- Needs 100-400 x power to see it
- Hard to show with pictures. Need to see movie.

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## Costia 400X

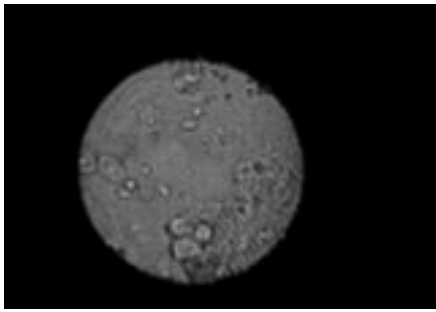


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### Costia Movie #3



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### Costia Movie #4



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### Flukes



- Cause Ulcer Disease and Flashing
- Hard to kill
- SupaVerm
- PRAZI
- OP's
- Why not dips?

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### Fluke Movie #1

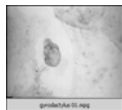


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### Fluke Movie #2

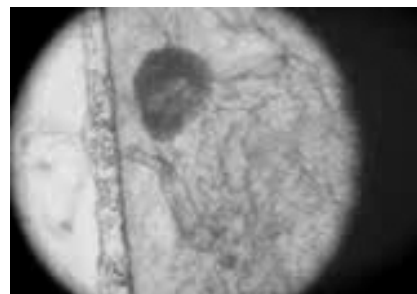


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### Fluke and Ich



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## Chilodonella



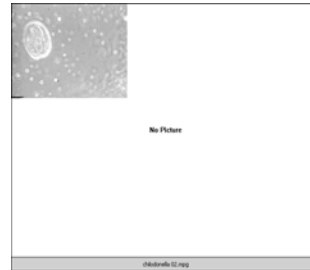
- Springtime Killer
- Not very small
- Highly motile
- Heart or onion shaped
- Dies FAST in preps

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## Chilodonella #2



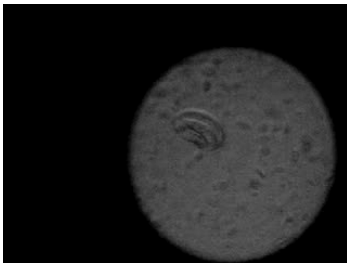
- When dead:  
Goes "round"

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## Chilodonella Movie #3

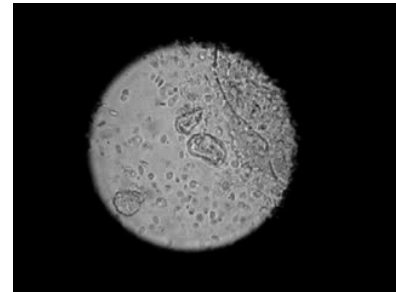


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## Chilodonella Movie #4

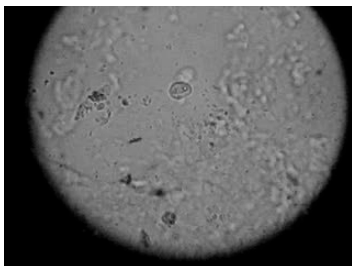


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## Chilodonella Movie #5



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## Ich



- This rarely causes "White Spot" in Koi even though the fish are dying of the parasite
- "Rolls in place"
- Salt it away
- Doesn't swim around.

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### Ich Movie #2

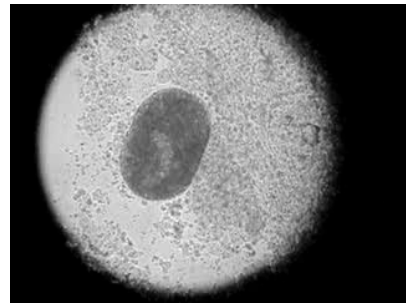


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### Ich Movie #3

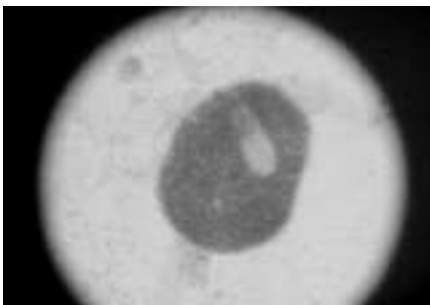


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### Ich Movie #4

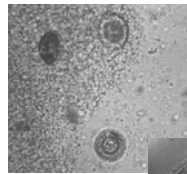


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### Trichodina



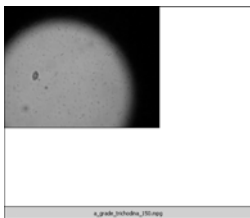
- Works in cold water
- Dirty ponds
- Highly motile
- Flying saucer shaped
- Binary fission & conjugation
- Salt usually works

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### Trichodina Movie #1



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### Trichodina Movie #2



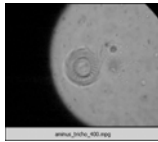
No Picture

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## Trichodina Movie #3

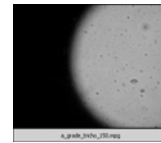


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## Trichodina Movie 4



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## Argulus



- Crustacean parasite
- Microscope is not necessary for diagnosis.
- Easily cleared with Dimilin.
- Harms fish for a week before grossly visible.

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## Argulus Movies

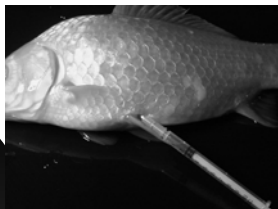


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## Injection of fish



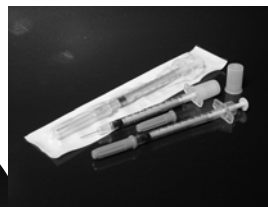
- In order to administer medications
- Sick fish might not eat
- Baths ineffective
- Injections are fast and fast-acting
- Simpler than you think
- When not to inject?

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## Materials



- One cc syringes usually okay
- Tuberculin Syringes easily available
- Flimsy needles
- Have to find sweet spot
- Air is okay!

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## IP Injection



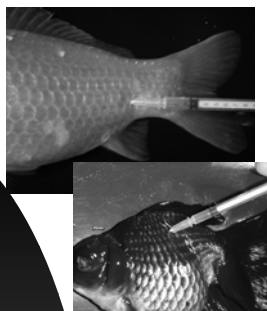
- Safer, cosmetically
- Easier
- Faster acting
- Sweet spot is under ventral fin, in “the pit” even on huge fish.
- No resistance!

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## IM Injection



- Can scar the fish
- Several sites
- Slower absorption
- Hurts the fish more, they struggle more.
- Blowback

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## Anesthesia



- Oil of Cloves
- IsoFlurane
- MS222 / Finquel
- Alka Seltzer
- Rubber hammer
- My biography

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## Oil of Cloves



- Safest!!! By far!
- Gradual induction
- Emulsify!
- 5 drops per gallon Oil of Cloves
- Eugenol / 85% Toothache Remedy – 1-2 drops per gallon

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## Wound Management



- Current Favorite: Hydrogen peroxide 3%
- Second favorite: Debride
- Iodine
- Potassium paste
- Melafix ©

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## Necropsy of the Fish



- There are a series of steps and cuts to get your information
- Gills first
- Gills in all dead fish – DON'T FORGET!

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## Necropsy Cuts



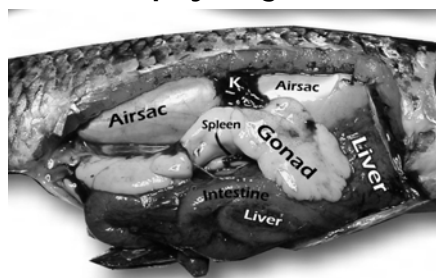
- Cut the gill cover off and look at gills
- Cut “vent to pecs” – Then up behind gill cover and back across and down to vent again. CAREFUL!

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## Necropsy Organs



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## Necropsy

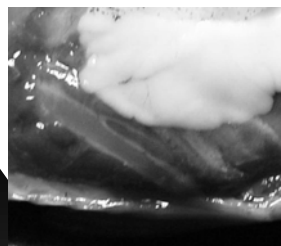


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## Intestines



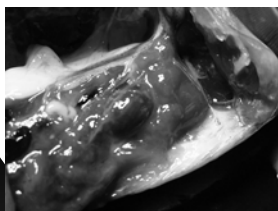
- Arranged in bands
- Liver and intestine parallel and functionally coordinated
- Liver also in cranial abdomen

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## Cranial Abdomen



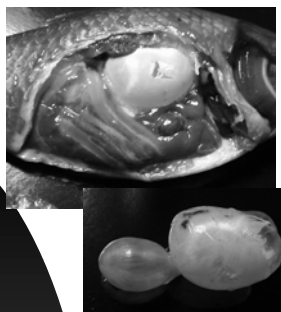
- Heart is between the pectorals, and cranially. It will beat for hours after fish is killed.
- Gall bladder
- Liver

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## Air Sac



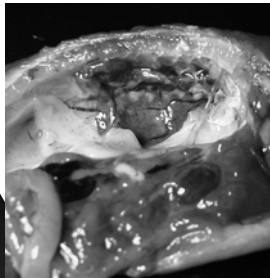
- Indicator of sepsis because it will often be bloody and red during bacterial septicemia
- May be water filled
- May be overinflated.

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## Kidney



- Normally small and cordovan leather to brown in color
- Rides in saddle between lobes of air sac
- Can be fluid filled if CYSTIC

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## Surprise! Thank you!



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## Techniques Save Lives



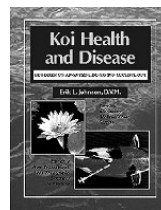
- Make sure the treatment is WORTH the stress you'll cause in handling the fish.
- When a fish is sick, it means "Something happened to it"
- Disease is not spontaneous.

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## Next Steps



- Visit KoiVet.com
- Get "The Book" if you do not have it already.
- Visit FishDoc.net for a growing list of Frequently Asked Questions
- Remain duly skeptical of marketing claims until the evidence is incontrovertible.

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## Extras

- Disinfection
- Anatomy
- Flashing
- Injection regimens
- Salvaging Koi
- pH Shock
- Temperature Shock
- Shipping Bag Blues
- "Test Then Treat" Philosophy



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## Disinfection



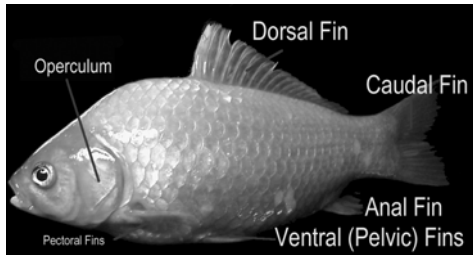
- 1:30 Clorox dilution
- Can be sprayed on
- Can be left on
- Can be rinsed off
- Can be dechlorinated

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## Anatomy



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## Flashing

- Fish scratching on the bottom of the tank, rocks, or ornament edges.
- Parasitisms are the number one cause
- No ONE parasite is always responsible
- Never assume a specific pathogen
- Changes in temperature and pH can illicit a flashing response
- Ultra-common in show tanks - NORMAL

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## Injection Regimens



- Azactam and Amikacin Combo
- Azactam and Baytril combo not in same syringe
- Nuflor once
- When to stop injections?
- Resistance issues?

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## Salvaging Koi

- Finding the "Flopper" – Rinse & Open Covers
- Injection of Dexamethasone
- Walking a Koi
- Killing a Koi with a pump
- Propping a Koi upright and why?

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## pH Shock



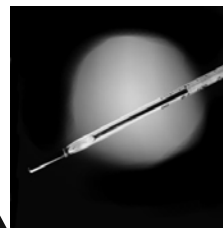
- Rising pH is virtually harmless  
Caution: Ammonia toxicity  
Falling pH is a hazard –  
Endpoint is more important  
Endpoint of <6.5 will kill
- pH Crash

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## Temperature Shock



- Sudden placement in water 10 degrees off is stressful.
- Rapid change by 20 degrees risks death
- A drop of 20 degrees from 55 to 35 will kill
- Again, endpoint is key.

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## Shipping Bag Blues



- Lengthy shipment = Ammonia accumulation
- Drop in pH due to carbonic acid
- Ammonia will be less toxic due to lower pH
- Move fish to clean water under pure oxygen at same temp.
- Discard shipping water!

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## "Test Then Treat" Philosophy



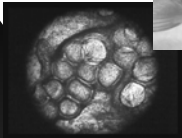
- Fish with clamped fins, resting on the bottom.
- It's water quality until proven otherwise.
- Probably low pH first, nitrogen second
- Test AND THEN treat.
- Don't dose with medication before testing the pond water carefully
- Ammonia, Nitrite, Nitrate, PH and Carbonate alkalinity

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## Thank you



- Thank you for your kind attention!
- Dr. Erik Johnson

7/22/2004

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# Fast Fish Medicines PondRx.com

Visit PondRx.com for more articles!



When fish are sick, you can't wait for the guy in the garage to get around to shipping your meds. We ship fast and we have what you need for fish, sick or healthy! Economical fish foods, pond supplies, water conditioners, and more! The difference is this: "You name it, but we might not have it!" Because we don't sell stuff that doesn't work! So there's a lot of items you'll never see on Pondrx.com Never have to worry about buying useless junk.

## 706 374 3037

### For bacterial sores:

Warmer water, salt at 0.3%, medicated food like MediKoi and injections would be recommended. Tricide Neo can be sprayed on. PondRx stocks all these remedies, ready for your needs, including heaters, and water test kits to make sure the water is good enough for healing!

### For flukes:

Pondrx.com recommends the use of either Supaverm or Prazi - both of which are filter safe and easy to use. Malathion can also be used. We have a book that describes that. Supaverm kills goldfish but Prazi does not. You get explicit instructions on the use of these medicines with your order.

### For lethargy, clamped fins:

First, test your water pH and nitrogen numbers. We have test kits that are cheap and easy to use. If your water tests well, salt to 0.3% and send us a fish specimen and we will give you a free diagnosis!

### For rapid losses:

Water testing first, then salt to 0.3% and call us! We will accept samples perform wet mounts, and tell you what's wrong at no cost!

### For Costia:

Sometimes Costia is best treated by removing the Koi and treating them with Proform C in a holding tank, then treating the pond with double dose Potassium. We sell both with clear instructions.

Visit PondRx.com for more articles!

#### Volume estimate:

Length x Width x Depth (all in inches) divided by 231 gives US Gallons.

Salt 0.3%: Three pounds of salt per 100 gallons (No trace minerals or YPS, salt should be pure)

When raising temperature, do not raise it more than one degree per hour!

Make sure your pH is always ABOVE 7.0

Water changes at 10% per week are highly, highly recommended! Or change 20% every 2 weeks.

### Other Sites Of Service:

#### [Koivet.com](http://Koivet.com)

Message board, chat area, and hundreds of articles on fish health for you to read and learn from.

#### [PondCrisis.com](http://PondCrisis.com)

Step by step help for sick fish, this site breaks a pond crisis down into a simple, twenty step diagnostic process.

#### [KoiCrisis.com](http://KoiCrisis.com)

Organized in sections about medicines, symptoms, water quality and more, this is a great fish health site.

#### [KoiGallery.com](http://KoiGallery.com)

Show off your fish, simply create an album, and upload your best Koi images!

## For Rush Service Call 706 374 3037