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| ***Parasitic Disease*** |  |  |
| **Symptom** | **Disease** | **Treatment** |
| Rapid Gill Movement | ***Amyloodinium ocellatum “Marine Velvet”*** | 1) Freshwater dip with Formalin |
| Cloudy Eyes, Skin, Fins |   | dinoflagellate with 3 stage lifecycle | 2) Ionic Copper (.18-.2mg/l) for 21-30 days |
| Appears rolled in powdered sugar |   | trophont = feeding | 3) Chloroquine phosphate |
| Slime coat sloughing off |   | Tomonts (encyst, palmella) = reproduction |  | \*Use Hyposalinity (SG = 1.010-1.013) with Copper and Quinines |
| (cause death in 12 hours) |   | dinospore = free swim (3-4wks w/o host) | Note: Always treat for 10 days after last seen parasite. |
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| Pitting flesh around head | ***Hexamitosis or Spironucleosis*** | 1) Water quality improvement |
| Pale Color |   | "Hole in the Head" | 2) Medicate food with Metronidazole (3 days on/3off/3on) |
| Loss Appetite | Parasites reside in digestive tract (dinoflagellate) | 3) Medicate with Metronidazole in tank (9.1-10.4mg/l) |
| Hiding in corner | Common in Tangs and Angelfish | Note: Spirulina foods can help rid the digestive tract of parasites |
| Lie on Bottom |   |   |   |   |
| Slimy white feces |   |   |   |   |
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| Rapid Breathing | ***Crypotcaryon irritans*** | 1) Freshwater with Formalin |
| "Flashing" rubbing on objects |   | "Marine Ich" | 2) Copper (.18-.2mg/l) with Hyposalinity |
| White pinhead spots on fins, gills, | 3 stage lifecycle (average 28 days) | 3) Chloroquine phosphate (40mg/gal) 1 treatment |
| skin and eyes |   | Trophont = feeding | \*Raising temps will cause tomonts to lay dormant (up to 90 days) |
| Sloughing of slime coat |   | Tomont = fall and encyst |   |   |
| Cloudy eyes |   | Tomite = free swim to find host |   |   |
| Ragged fins |   |   |   |   |
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| White spots | ***Brooklynella hostilis*** | 1) Hyposalinity |
| Rapid Gill Movement |   | "Clownfish Disease" | 2) Freshwater baths with Formalin (2-20drops/gal aerated well) |
| White Patches | Opportunistic: Poor Water, Overcrowding | 3) Formalin (15-25mg/l) |
| Thick Slime Coat | Feed on skin and blood |   | Treat for 6 days dosing every other day (3 trtmnts) |
| Cloudy eyes | Can kill entire stock in days | 4) Chloroquine phosphate |
| "Flashing" | \*More deaths than Amyloodinium or Crypto | \*add broad spectrum antibiotic to counteract secondary infections |
| Loss Appetite/ Lay on bottom |   |   |   |   |
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| ***Parasitic Disease cont…*****Symptom** | **Disease** |  |  | **Treatment** |
| Loose/Missing scales | ***Uronema marinum*** | 1) Proper husbandry |
| Thickened Slime Coat |   | Normal fauna of decomposition | 2) Formaline |
| Lesions with red rings |   | Opportunistic ectoparasite | 3) Chloroquine phosphate |
| Tissue/Muscle exposure |   |   | \*Does not respond to copper! |
| Ragged Fins |   |   |   |   |
| "Flashing" |   |   |   |   |
| Rapid/Labored Breathing |   |   |   |   |
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| Black pinhead spots | ***Turbellarian*** | 1) Formalin (15-25mg/l) |
| "Flashing" |   | "Black Ich" |   | Treat for 6 days dosing every other day (3 trtmnts) |
| Rapid Breathing | Free-living flatworm (monogenetic) | 2) Praziquantel 1-5mg/l (once a week for three weeks) |
| Listless | 10 day lifecycle at 76 degrees F |   |   |
| Loss Appetite | Likes high organic waste |   |   |
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| "Flashing" and scratching | ***Flukes and Trematodes*** | 1) Freshwater Dip with Formalin |
| Swimming erratically, shaking |   | Monogenean are most problematic | 2) Praziquantel 1-5mg/l (once a week for three weeks) |
| Rapid Gill Movement |   | Usually species specific |   |   |
| Loss of appetite |   | Hooks and suckers to anchor into gills |   |   |
|   |   | Affect gills, eye, skin |   |   |
|   | \*allow for secondary infections |   |   |
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| Can see parasite on fish | ***Crustacean parasites*** | 1) Remove with tweezers and disinfect area with H2O2 or Iodine |
| Filaments (string or coil from fish) |   | Isopods = wounds "fish louse" | 2) Formaline |
| Lesions or wounds |   | Copepods = bore into tissue (female) | 3) Trichlorfon (100mg/100l) - several treatments since kills young  |
| Raised scales/Missing scales |   |   |   | parasites not the female attached. |
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***Bacterial Infections***

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| **Symptoms** | **Disease** | **Treatment** |
| Fin damage from transport, | ***Pseudomonas, Vibrio, Aeromonas, Cystophoga,*** | 1) Kanamycin (50-100mg/l) treat every 3 days for 7-10 days |
| fights | ***or Edwardsiella*** | 2) Neomycin (65mg/l) Every 24 hours |
| \*begin outside work inward |   |   | 3) Nifurpirinol (1-2mg/l) 5min-1hr bath every 24 hours |
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|  |  |  |  |  |
| 2-3 days red inflamed area seen | ***Furunculosis*** | 1) Nifurpirinol |
| Open wound grows larger and  |   | \*secondary to Amyl, Brook, Uronema | 2) Kanamycin |
| deeper |   |   | 3) Sulfanthiazole (.2-.4mg/10gal) for 3 days |
|   |   |   | 4) Sulfamerazine (220mg/kg) in food 7-10 days |
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| Chronic condition | ***Mycobacteriosis, Tuburculosis*** | None - by time recognize the signs, usually too late (Euthanize) |
| Weight Loss (pinched abdomen) |   | "Wasting Away Disease" | Many times must sterilize tank, nets, etc. |
| Swollen pectoral area (liver) | \*zoonotic\* |  |   |
| Bulge Eyes | Internal bacteria |  |   |
| Scale loss |   |   |  |   |
| White skin patches |   |   |  |   |
| Hiding behavior |   |   |   |   |
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| Swollen abdomen | ***Internal bacteria*** | 1) Nifurpirinol (2-3mg/l) for 7-10 days |
| Raised Scales |   |   | 2) Oxytetracycline (20-30mg/l) for 3-5 days |
| Anal Distention |   |   | 3) Erythromycin (10mg/l) for 3 days |
| Popeye |   |   |  |   |
| Refuse food |   |   |  |   |
|   |   |   |  |   |
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| ***Fungal Infections*** |  |  |  |  |
| **Symptoms** | **Disease** | **Treatment** |
| Raised Scales | ***External*** | 1) Improve water quality |
| Light or dark pigment | Secondary to where slime coat has gotten | 2) Boost immune system |
| Cotton-like tufts (fin, eye, mouth) |   | damaged - Uronema | 3) Sulfa drugs (.65-1.3mg/l) for 7-10 days |
| Circular shape | Poor water quality | 4) Miconazole applied directly to area infected |
|   | Overcrowding |  |
|   | Seahorses, Clownfish, Butterflyfish more prone |   |   |
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| Emaciated | ***Internal (Ichthyophonus boferi)*** | 1) Prevention only |
| Abnormal swimming (corkscrew) |   | Popeye, Sandpaper Disease, Reeling | 2) Phenoxyethanol (12.5ml/4l) has been tried |
| Popeye |   | or Exopthalmia |  |   |
| Darkening of skin | Invades liver, kidney and spleen | Note: can take months to appear, so QT not necessarily help identify |
|   | Usually from feeder fish or raw fish food |  | Good water quality and safe food is best preventative |
|   |   |   |   |   |
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| ***Viral Infections*** |  |  |  |  |
| **Symptoms** | **Disease** | **Treatment** |
| Enlarged cells (appear as white) | ***Lymphocystis "Nodule Disease"*** | 1) Sedate fish and cut fins back than apply antiseptic |
| Salt-like appearance begin at fins |   | Iridovirus invades from rough handling | 2) Sedate and apply topical tincture (merthiolate, mercurochrome, |
| then moves toward body |   | or shipping stress |  | or 10% silver nitrate) |
| Cauliflower-like cells (grapes)  |   | Damages to slime coat allow access | 3) Tetrahydrozoline (Visine) to infected areas |
| under 100X magnification |   | Fine to diseased overnight | 4) 35% Hydrogen Peroxide (1ml/10gal) |
| Mouth and/or gills growths |   |   | 5) Let it run its course or euthanize if too far gone |
|  |  |  |  |  |
| ***Non-Pathogenic*** |  |  |  |  |
| **Symptoms** | **Disease** | **Treatment** |
| Bubbles in eyes, fins, body, gills | ***Supersaturation "Gas Bubble Disease"*** | 1) Fix any air leak in pumps |
| Embolisms |   | Water becomes supersaturated with gas | 2) Aerate the water |
| Asphyxiation |   | because of air forced into (higher than | 3) Equalize the temperature of the water prior to water changes |
| Mass deaths in tank |   | atmospheric) | 4) Avoid any rapid raise in temperature |
|   |   | Rapid raise in temperature or depressurization |  |   |
|   |   | of water |   |   |
|  |  |  |  |  |
|  |  |  |  |  |
| Disfiguring and discoloration | ***HLLE = Head and Lateral Line Erosion*** | 1) Water Quality High |
| of head and body along the  |  | Unknown cause, very argumentative  | 2) Proper Diet |
| lateral line | Possibilities include: | 3) Ground the tank |
|   |  | Nutrition/ Vitamin deficiency |  |   |
|   |  | Pathogens |  |   |
|   |   | Stray Voltage |  |   |
|   |   | Copper |  |   |
|   |   | Poor Water Quality |  |   |
|   |   | Activated Carbon Usage (newer thought) |  |   |
|   | \*More rare In Reef than FO or FOWLR |   |   |

**Standard Arsenal of Drugs:** Formalin (37% Formeldahyde), Praziquantel (and Metronidazole), Gentamycin or other wide spectrum antibiotic (gram negative orientated).

Good source of meds is National Fish Pharmaceuticals (www.nationalfishpharm.com)