

Rounds

Animal Health
Department

Medical Rounds

"medicine for all"



Caring for Stranded Marine Animals

NATIONAL
MARINE
L I F E
CENTER

Notes

Veterinary Research
Department

Under the microscope

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Rounds Notes is a report on the health of animals at the National Marine Life Center from Sea Rogers Williams VMD for the staff, volunteers, and community of the center including professionals involved the captive care of similar species, the views expressed are not necessarily that of NMLC. Information in Rounds Notes should be considered confidential and used solely to benefit the health of aquatic animals everywhere.

October 25, 2011

Rounds Notes

8: 25-28 (2011)

Headlines News: Funded

The Charismatic Microfauna

After several years of applications, the NMLC was funded with a NOAA Fisheries Prescott Grant to establish a marine mammal parasitology lab at the center. We will accept samples from all over the country and produce clinical, necropsy, and forensic reports in all aspects of parasites that infest marine mammals. We have started to equip the lab, a process that will take a few months, but we are well on our way. Word of mouth has spread, and samples are starting to arrive, stay tuned to Under the Microscope for details (and a picture of the new microscope when it arrives).



Clinical Update: Catch-22, fungal frustrations dermatomycosis is a pain in mycosis

If you recall we had a shell biopsy that contained fungal elements analyzed for fungal DNA, which found a 99% homology with both *Trichosporon dermatis* and *Trichosporon mucoides* [GenBank & CBS fungal database], so we cultured the yeast with great difficulty at Cornell and they found the *Chrysosporium* anamorph of *Aphanoascus* species (91% homology) which was most similar to *Aphanoascus fulvescens* by morphology. They further tried a new set of ITS primers which had it's closest match with *Chrysosporium articulatum* (100% identity, 70% coverage), which was too far off for a definitive match.



The yeast was subcultured and sent to the Texas fungal lab for growth characteristics and definitive ID but they failed to grow a definitive form of the yeast. Several attempts were made to test fungal sensitivity, as this does not necessarily require identification, but all attempts including a thick suspension failed to grow in a suitable fashion. Cornell also isolated a heavy growth of *Fusarium solani* complex but this is not compatible with the morphology of the sample we seeing on shell scrapings.

Our plan is to pick an anti-fungal drug and attempt to eradicate the infection without ID or sensitivities, and hopefully without harming Catch-22. The good news is that the fungal infection has remained superficial without specific treatment, and has even subsided in it's intensity, this is good news for the cooters that were released as these does not appear to be a significant pathogen. Still, the ability to treat the infection would be nice.

Sea Turtles: holding pattern

While the water temps are getting lower, the weather has been very pleasant and no stranded sea turtles have yet come ashore, there are reports of sea turtles in Cape Cod Bay, and we hope they will all make it south on their own. But if years past tell us anything, many will be trapped in the Bay and require help in the fall. All cold-stunned turtles in Massachusetts will go to the New England Aquarium for critical care and evaluation, and we at the NMLC stand ready to help out if requested.

Terrapins, Cooters, and Turtles, oh my . . . : Metabolic Disease Crew Doing Well

We finally got a sample to test Vesuvius, the smallest of the three cooters with MBD. We found an ionized calcium level of 1.37 mmol/L this is a little better then Big Bruce (1.33 mmol/L) on day one, we have four previous samples from Vesuvius with non-measurable and assumed low ionized calcium. We still have to test Perice, but the sample drawn today was simply too small even for the tiny iStat cartridge, but this is a common occurrence with these little ones and we'll get the blood, meanwhile Perice is also doing well, and I suspect a normal calcium level there too, but we should make sure. We will just give the cooter a week or two of RR before we try again.



Terrapins, Cooters, and Turtles, oh my . . . : meet the Class of 2012 !

Eight hatchling were delivered as part of the annual red-bellied cooter head-start program, and this batch is as small as last years. All the turtles passed their entrance physical, and only one turtle was found with a minor problem, two missing toes, but the wound had healed and is not an active problem, except for his name, . . . "Two toes" of course.

We have their regular set-up with an over the tank filter, mercury-vapor bulb for heat and UVB, warm fresh water and lots of lettuce. We've added a cuttlebone in the tank, and yes, I have seen cooters eat the bone which is a good source of calcium, for now these little ones seem content to ride on it like a surf-board. They have already produced some high bacterial counts so daily water changes are being performed. We have a large filter on the tank but the current is too strong for these little ones, and we'll start using the large filter in a month or two.



Terrapins, Cooters, and Turtles, oh my . . . :

good luck Eleanor

After clearing a "reverse quarantine" and finding no risks to the wild population, Eleanor, a diamondback terrapin was returned to the wild, near where she was collected a year ago. A perfect early fall day was chosen and the weather has cooperated very well with plenty of time for her to acclimate to a wild life but then settle in for a long winters nap. Good luck Eleanor and safe travels !

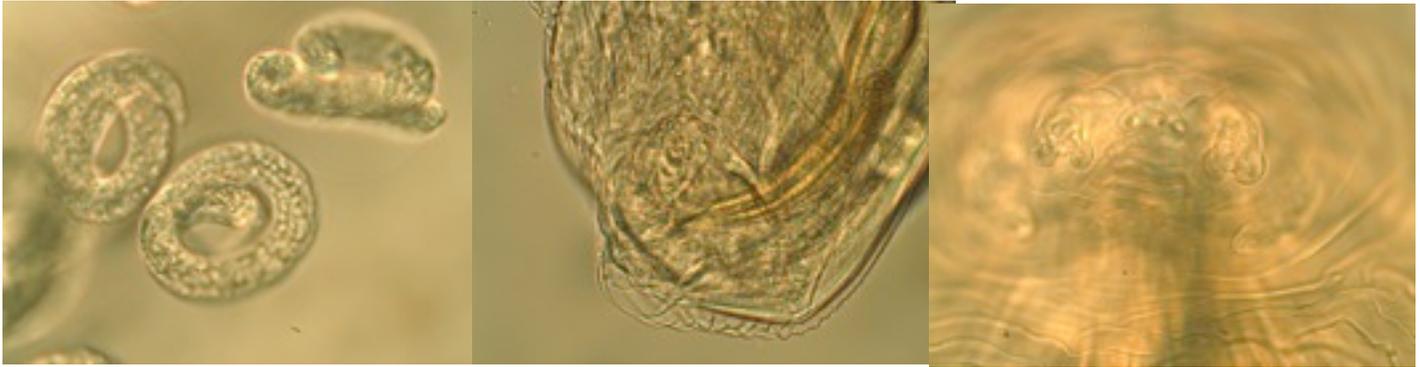
Under the Microscope: Charismatic Micofauna:

you got to have heart, a broken love affair

We thank the folks at the Marine Mammal Center for sending along some interesting parasites from the right side of the heart of a Pacific harbor seal. The seal died of DIC and two nematodes were taken from near the tricuspid valve. The two worms turned out to a male and female *Acanthocheilonema spirocauda*, the seal heartworm, which is different than the dog heartworm (*Dirofilaria immitis*). The seal heartworm has been reported from several phocids: harbor, ringed, spotted, ribbon, bearded, hooded and harp seals. Two adult worms may not be a fatal infection by-them-selves but do cause pathology and did not help the matter, but the worms were lost along with their host, an interesting but sad same-old parasitic story. You know the one, boy worm meets girl worm in the heart, they fall in love, they set up home in heart, but that makes the host sick, the host dies and so do they. What ? did you think Shakespeare made this stuff up ? These stories have been going on for millennia.



disease in a young spinner



Some parasitic infections are devastating, and lung worms have the potential to cause disease, stranding, and even death. Our very first case, under the grant, is a *Halocercus* lungworm infection from a young spinner dolphin that died in Hawaii. While the sample is likely the known lungworm of spinners's *H. delphini*, only two adult male worms were examined, as they are the key to the species identification. Some of the fine morphology of the bursa was a little off and we've engaged an expert to review the specimen and confirm *H. delphini*, until then we'll leave it as *Halocercus* species. We also identified the larva in the feces which would be the diagnostic sample to alert clinicians that a lungworm infection was present, but the response was overwhelming in this case with a florid host response. The poor little dolphin died in the wild was presented as a dead stranded cetacean found in the surf. I will post some digital micrographs of the pathology as soon as the slides arrive.

Some lungworm infections are also incidental findings with little to no host reaction and no loss of body condition. So what causes some infections to be fatal while others are tolerated? We do not know for sure and will be investigating this phenomena over the next several years. We will be collaborating with marine mammal pathologist Dr. David Rotstein on several of these cases, and will investigate together the appearance of helminths in histopathology preparations, David will supply the pathological descriptions, and I'll look at the whole parasites in our new lab, together we may be able to make better sense some of these mysteries and help wild marine mammals.

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