Case Report: Great Blue Heron (*Ardea herodias*) Morbidity and Mortality Investigation in Maryland's Chesapeake Bay

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ID#	SEX	Location	Wgt (g)	HCT/BC/TS *	BCI **	Heavy Metals	O.C ***	Blood Chemistry	Microcystin[A] (ng/g)
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WHAHE22	M	Centerville	2270	N/A	3	Normal	Neg	Normal	4.85
WHAHE16	M	Carr's Crk.	2245	12/1+/3.2	3	N/A	N/A	N/A	1.65
WHAHE25	M	Carr's Crk.	2905	18/1+/1.6	4	(Zn & Fe) High	Neg	Normal	1.43
WHAHE24	M	Stevensville	2960	20/2+/3.0	4	Normal	Neg	Normal	1.25
WHAHE27	M	Stevensville	2610	N/A	3	N/A	N/A	N/A	0.95

*HCT = Hematocrit (% red blood cells)
BC = Buffy coat (% white blood cells)
TS = Total solids expressed in g/dL

**BCI = Body Condition Index, scale of 1-5 (1 = emaciated, 3 = normal, 5 = fat)

***Organochlorine =GC/MS/GC screens that detect insecticides (organophosphates, carbamates and organochlorines), strychnine, metaldehyde, several drugs, environmental contaminants.

Table 2. Case summaries (5 GBHs presented to TSBRR)

Presentation

- •Not standing (5/5)
- •Firm, "ropey" abdomen (5/5)
- • Open wound on back (1/5)
- •Yellow-brown diarrhea (5/5)
- •Agonal respiration (1/5)
- • Covered in mud (1/5)

Treatment on entry

- •Dexamethasone 3mg/kg (1/3)
- •Hetastarch PO (2/3)
- •2.5% Dextrose in Lactated Ringer's Solution, 35-40cc IV (3/3)

On-going care

- •Ivermectin 0.2mg/kg SQ once (1/3)
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Figure 1. Great blue heron (*Ardea herodias*)

Figure 2. Location of avian mortality events, harmful algal blooms, and sites where debilitated great blue heron were collected in the Chesapeake Bay during the Fall 2001.

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Figure 3. External view of GBH abdomen with fat deposits visible through the skin.

Figure 4. View of GBH body cavity showing extensive subcutaneous and abdominal fat deposits.

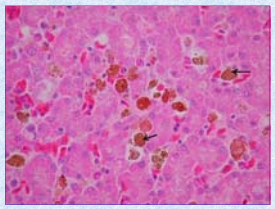

Figure 5. Microscopic view of extensive fat cells (arrows) throughout liver tissue. H&E stain 400x.

Figure 6. Cyanobacterial bloom where several debilitated GBH were found in 2001.

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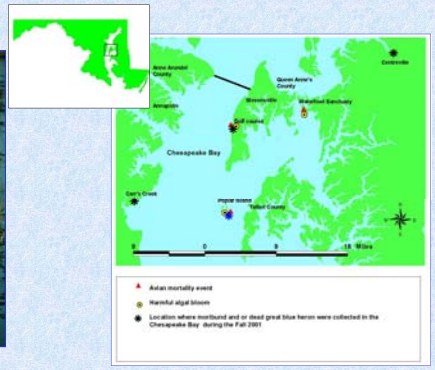

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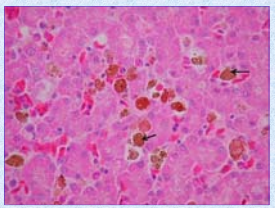

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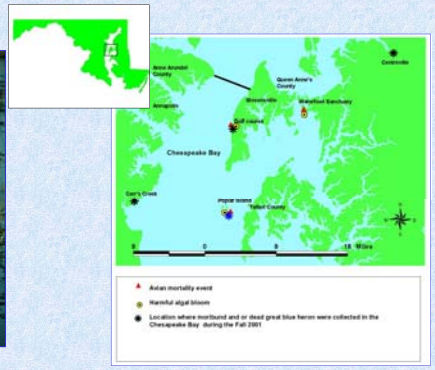

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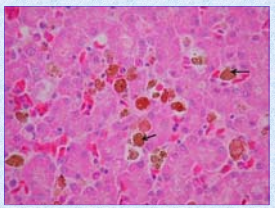

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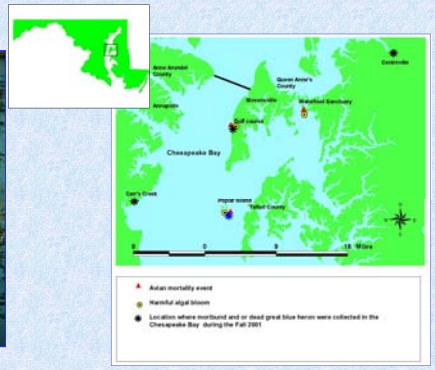

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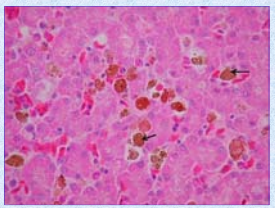

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**BCI = Body Condition Index, scale of 1-5 (1 = emaciated, 3 = normal, 5 = fat)

***Organochlorine =GC/MS/GC screens that detect insecticides (organophosphates, carbamates and organochlorines), strychnine, metaldehyde, several drugs, environmental contaminants.

Table 2. Case summaries (5 GBHs presented to TSBRR)

Presentation

- •Not standing (5/5)
- •Firm, "ropey" abdomen (5/5)
- • Open wound on back (1/5)
- •Yellow-brown diarrhea (5/5)
- •Agonal respiration (1/5)
- • Covered in mud (1/5)

Treatment on entry

- •Dexamethasone 3mg/kg (1/3)
- •Hetastarch PO (2/3)
- •2.5% Dextrose in Lactated Ringer's Solution, 35-40cc IV (3/3)

On-going care

- •Ivermectin 0.2mg/kg SQ once (1/3)
- •Metronidazole 50mg/kg PO BID (3/3)
- •Vit E 200IU PO BID (2/3)
- •Selenium 200mcg PO SID (1/3)
- •Gavage feed prn (3-5% of body weight, up to 3x/day) if not self-feeding on fish (3/3)

Time in care (avg.. = 3 days; range = 0-7 days)

WHAHE20 5 days--euthanized (moribund) WHAHE22 euthanized on arrival (agonal)
WHAHE16 3 days--died WHAHE25 7 days--euthanized (agonal)
WHAHE24 euthanized on arrival (agonal)

IV = intravenously SQ = subcutaneously BID = twice daily
PO = per os (orally) SID = once daily Prn = as indicated

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