



Host Distribution of the Parasitic Monogenean *Neobenedenia melleni* on Caribbean Reef Fishes

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Introduction

- Changing environmental conditions may influence the dynamics of host-parasite interactions on coral reefs.
- N. melleni* is an abundant and highly damaging ectoparasite on captive reef fishes, infecting a broad range of hosts.
 - However, little is known about its interaction with free-living hosts on Caribbean coral reefs.

Our previous studies have found highly significant differences in levels of infection among Caribbean surgeonfishes (Acanthuridae), and highly significant differences among sites for the most infected species, blue tang (*Acanthurus coeruleus*). We are now conducting a more comprehensive assessment of *N. melleni* infections among reef fishes of the U.S. and British Virgin Islands. This will provide a better understanding of Caribbean host-parasite dynamics.

Methods

- Fish were caught** at night on SCUBA with hand nets, or during the day with snorkel and cast nets.
- Fish were transferred** to holding tanks of aerated seawater.
- Parasites were removed** by dipping fish in freshwater baths for 5 minutes.
- Fish were measured and returned** to the reef.
- Parasites were filtered** from each fish's freshwater bath and **identified** under a dissecting microscope.

>400 individuals representing 37 species from 18 families were collected at sites in the Virgin Islands during spring and summer of 2007 and 2008.



Removing parasites in freshwater baths.

Results

		<i>n</i>	Prevalence (% infected)	Mean intensity (SE)
Acanthuridae	<i>Acanthurus bahianus</i>	19	10.5	
	<i>A. chirurgus</i>	30	46.7	2.9 (1.8)
	<i>A. coeruleus</i>	36	91.7	16.5 (3.2)
Chaetodontidae	<i>Chaetodon capistratus</i>	15	6.7	
Haemulidae	<i>Haemulon flavolineatum</i>	29	6.9	
	<i>H. sciurus</i>	15	0	
Holocentridae	<i>H. adscencionis</i>	19	10.5	
	<i>H. rufus</i>	15	0	
	<i>Myripristis jacobus</i>	15	0	
Lutjanidae	<i>Lutjanus synagris</i>	15	6.7	
	<i>L. apodus</i>	16	12.8	
	<i>Ocyurus chrysurus</i>	18	11.1	
Mullidae	<i>Pseudopenneus maculatus</i>	16	0	
	<i>Mulloidides martinicus</i>	15	0	
Ostraciidae	<i>Lactophrys triquetor</i>	27	59.3	4 (3.5)
Pomacanthidae	<i>Pomacanthus arcuatus</i>	15	13.3	
Scaridae	<i>Sparisoma viride</i>	16	0	
	Other <i>Sparisoma</i>	17	0	
Serranidae	<i>Epinephelus guttatus</i>	18	16.7	2 (1.5)
	<i>Hypoplectrus spp</i>	15	13.3	

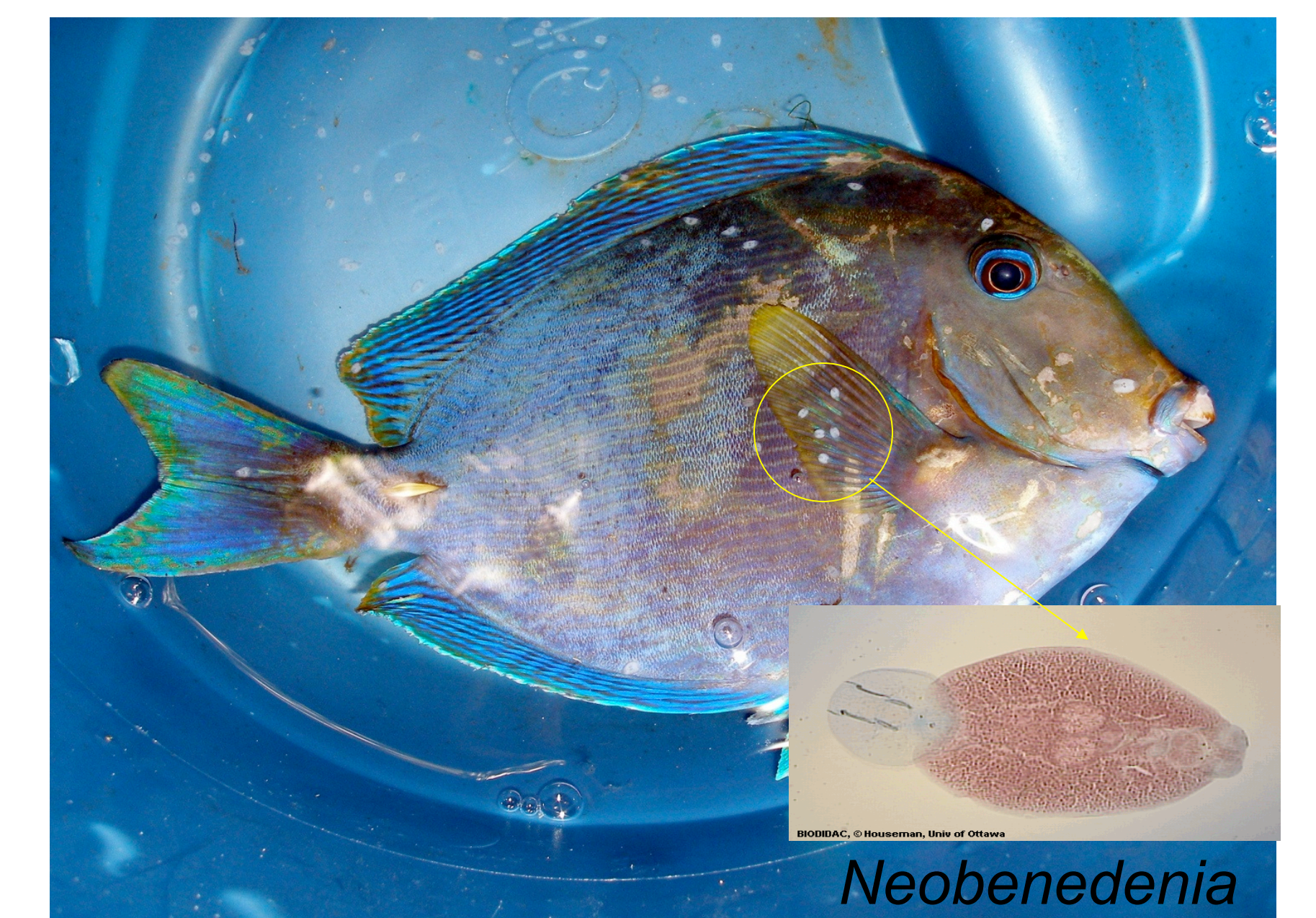
Prevalence calculated only for cases where $n \geq 15$

Intensity shown only for cases where prevalence > 30%

- N. melleni* was found on 15 of 37 species, including all three species of surgeonfish (*A. coeruleus*, *A. bahianus*, and *A. chirurgus*).
- However, prevalence was low (< 15%) for all but four species, and mean intensities of infected fish were low (< 5) for all except *A. coeruleus*.

Discussion

- N. melleni* appears to infect a narrower range of hosts in the field than in captivity, and reaches high levels in only one species.
- Prevalence and intensity of infection on blue tang suggest this is a primary host of *N. melleni* in the Caribbean.
- Although intensities were low, the prevalence of infection on *L. triquetor* suggests it is also highly susceptible to infection and that more Tetraodontiform fishes need to be examined.



Blue tang infected with *N. melleni*