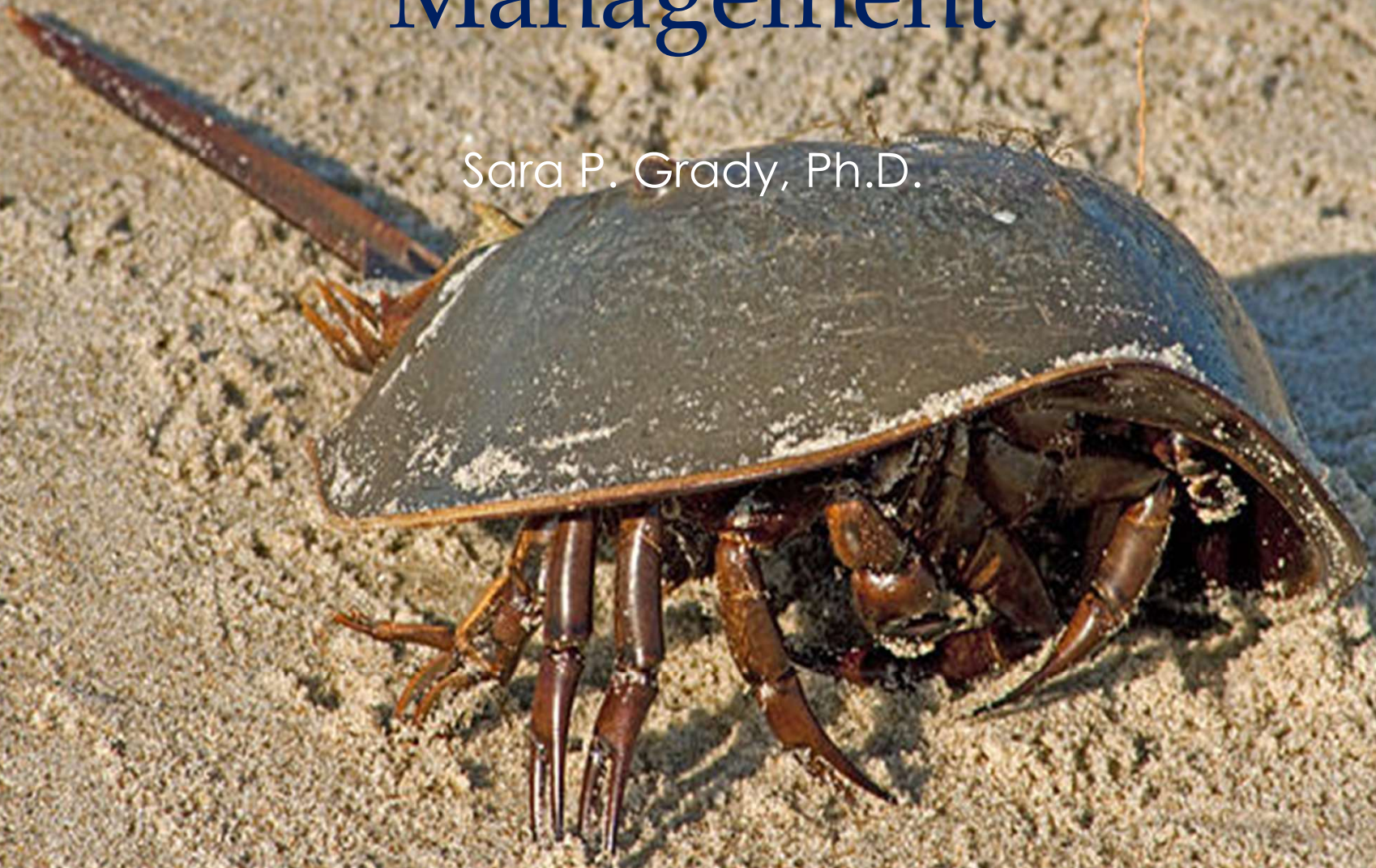


The Oldest Blue Bloods -Horseshoe Crab Ecology and Management

Sara P. Grady, Ph.D.







Classification

Kingdom: Animalia

Phylum: Arthropoda

Subphylum: Chelicerata

[Class:] Merostomata

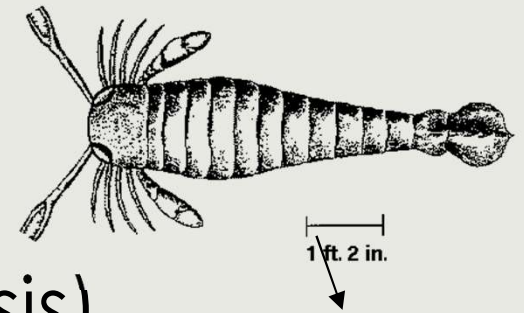
Arachnida – (2019, molecular analysis)

Order: Xiphosura

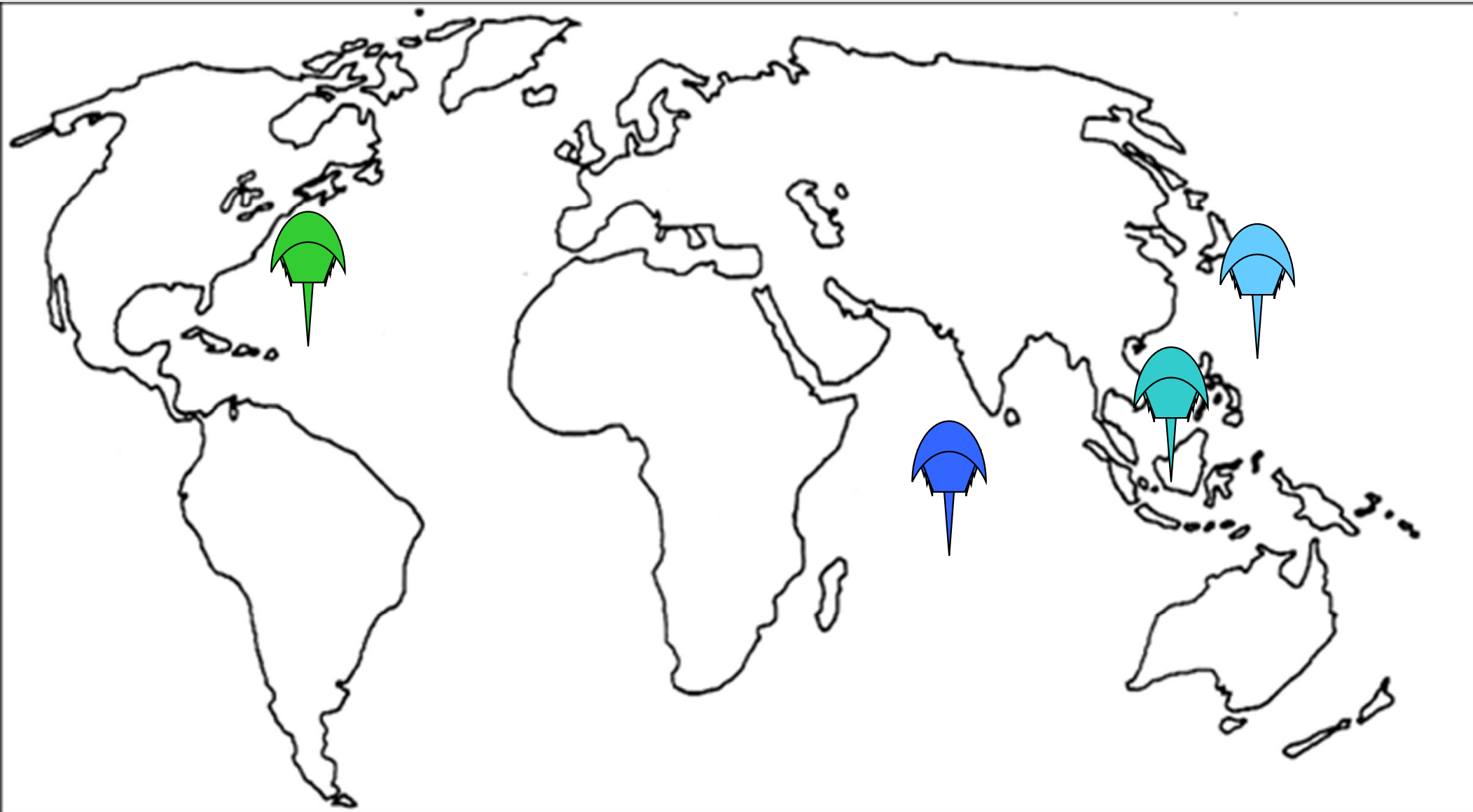
Family: Limulidae

Genus: *Limulus*

Species: *L. polyphemus*



Horseshoe crabs of the world



L. polyphemus

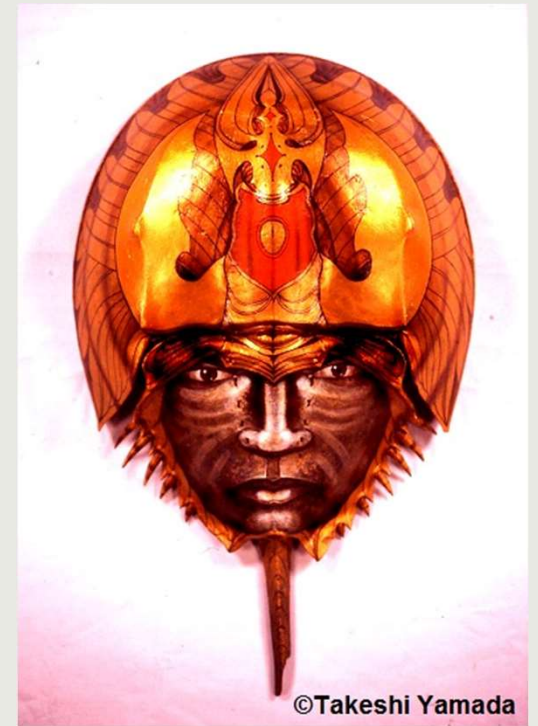
C. rotundicauda

T. tridentatus

T. gigas

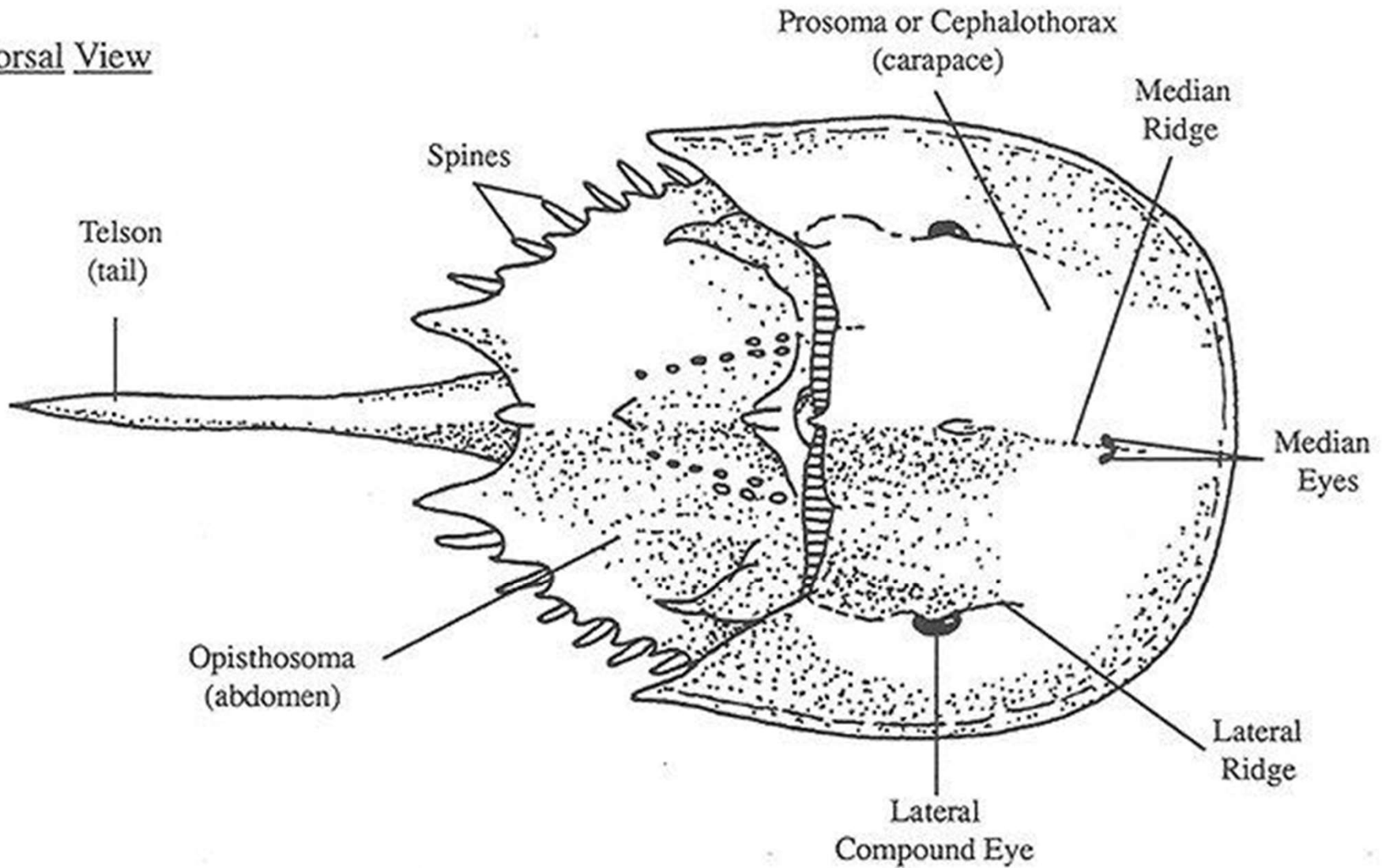
Samurai crabs

- Kabutogani (Warrior's Helmet Crab)
- Warriors who died in the Genpai Gassen war reincarnated as horseshoe crabs



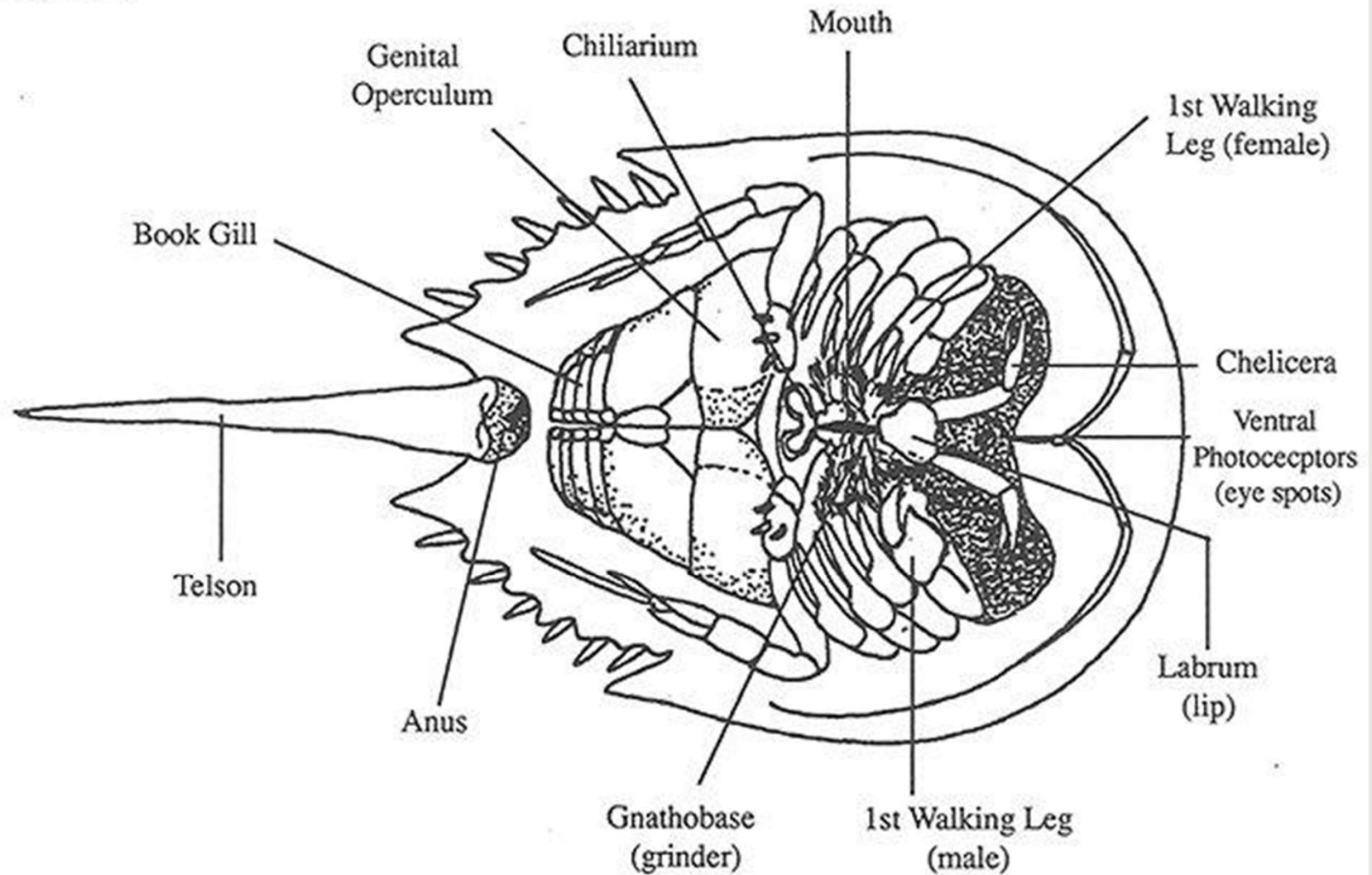
Horseshoe crab anatomy

Dorsal View

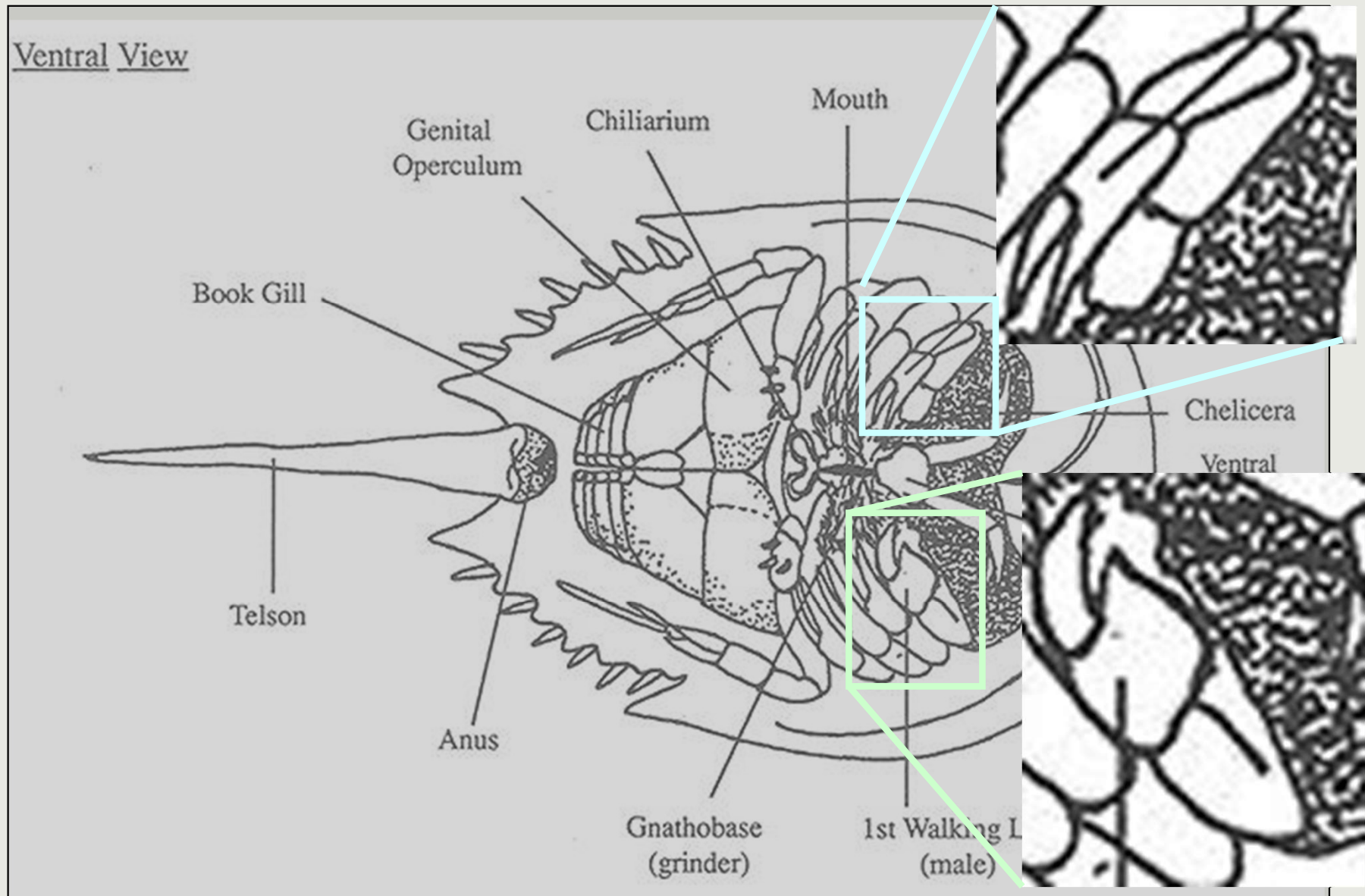


Horseshoe crab anatomy

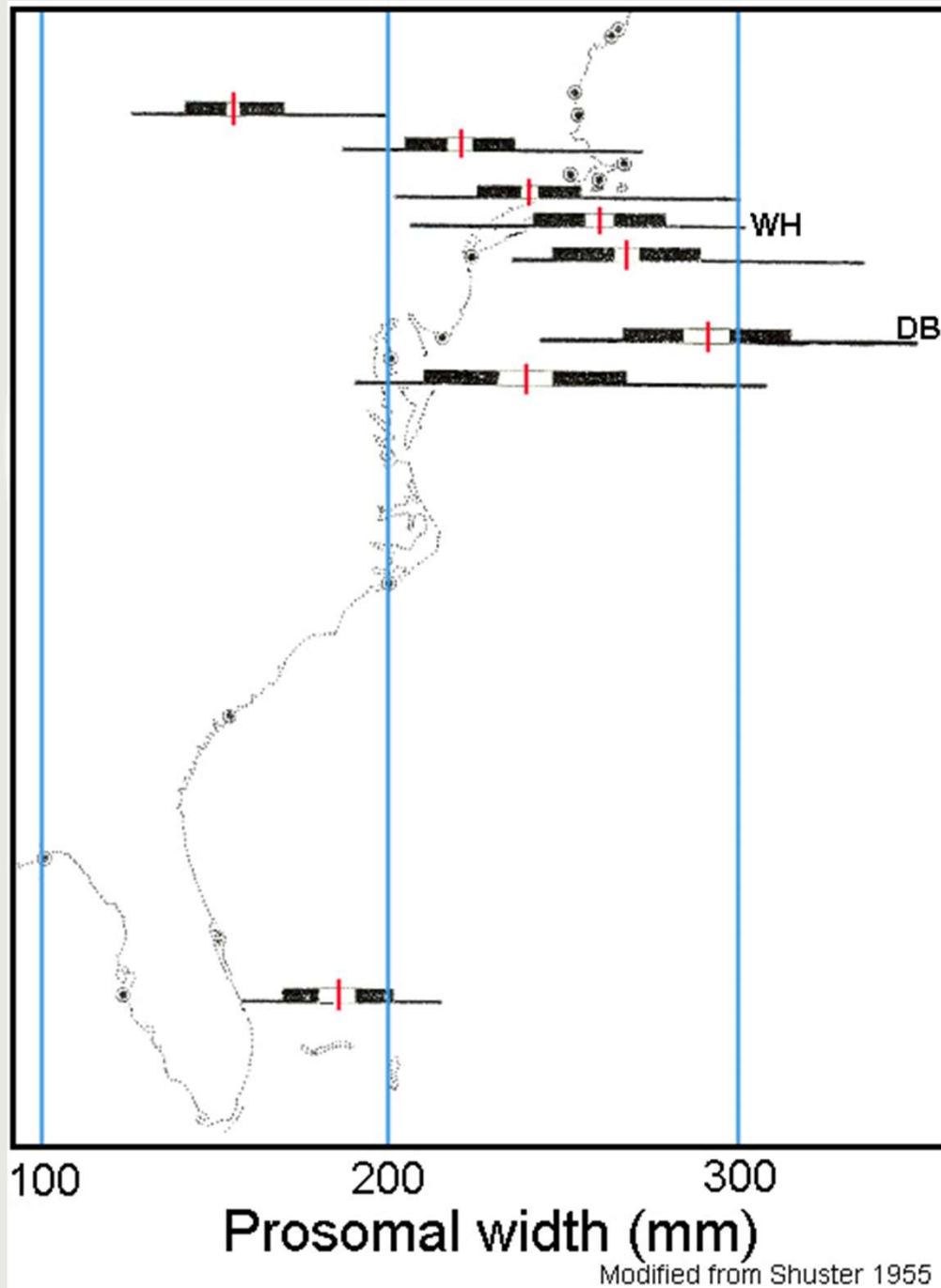
Ventral View



Males vs. females



Latitudinal variation in size



Life History



Full Moon Fever



Just a molt?



Pairing up (Amplexus)



Horseshoe crab eggs

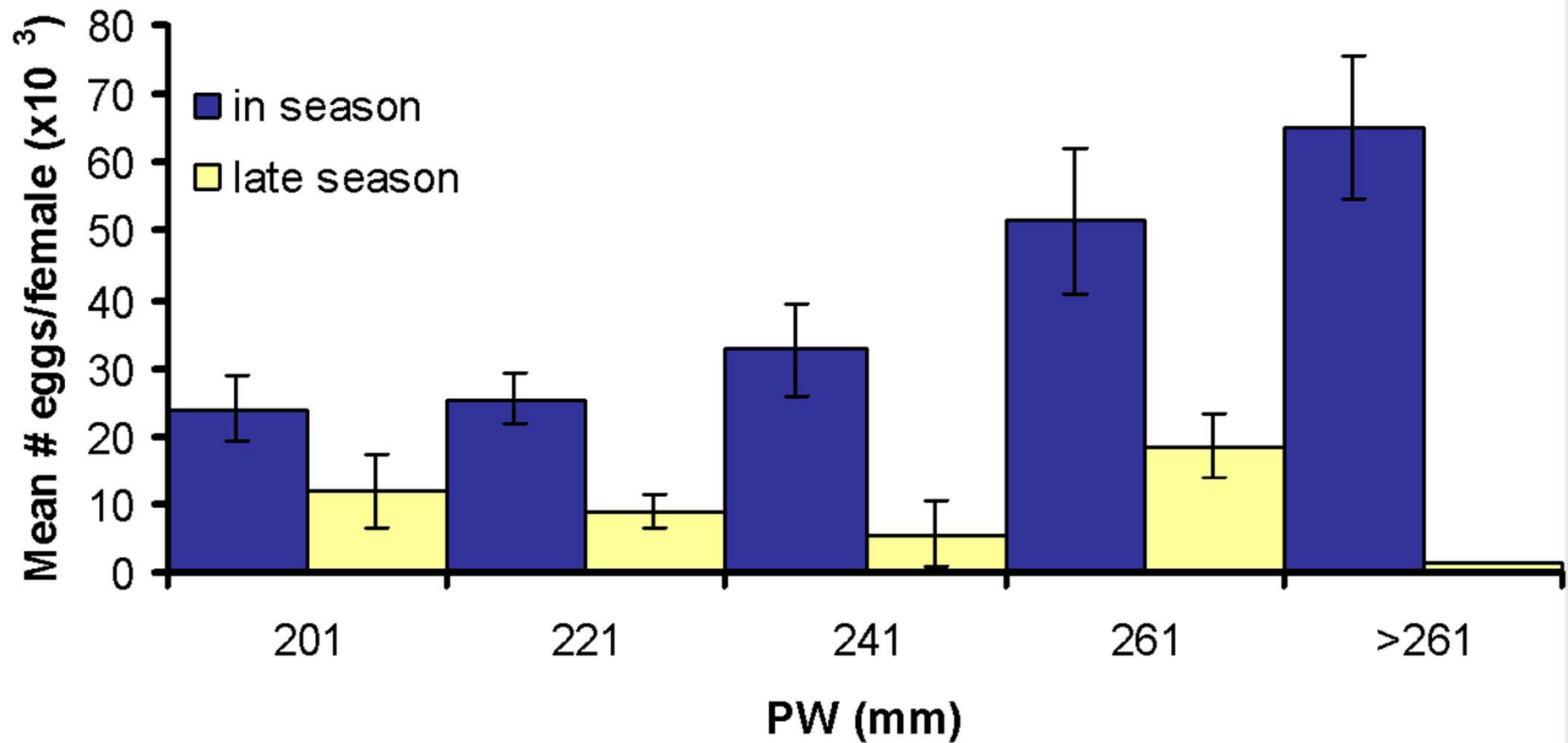


Lay 60,000-120,000 eggs in batches of a few thousand
Hatch after about two weeks

Inside a horseshoe crab

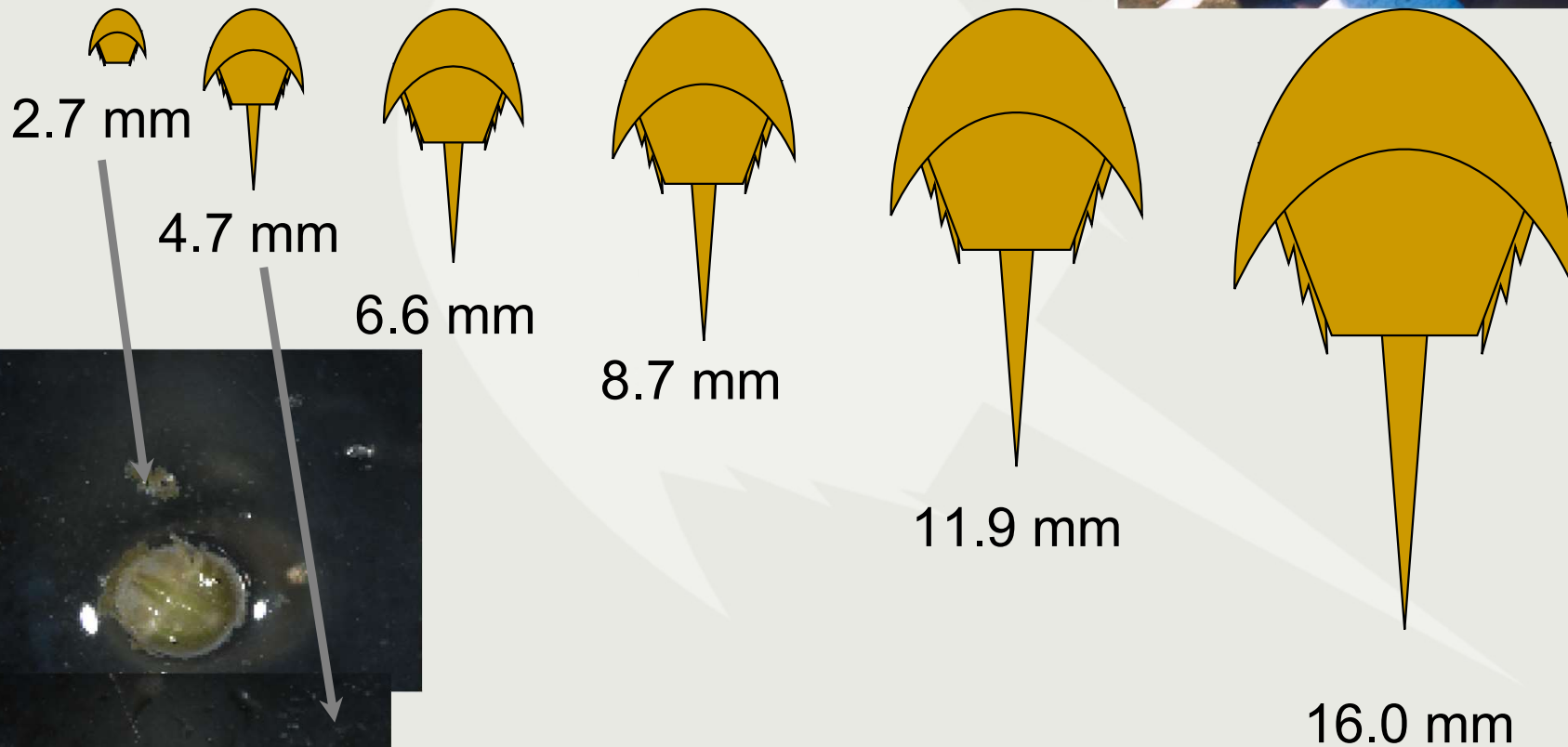


Lots of eggs!



Larvae

- 6 instars within first year

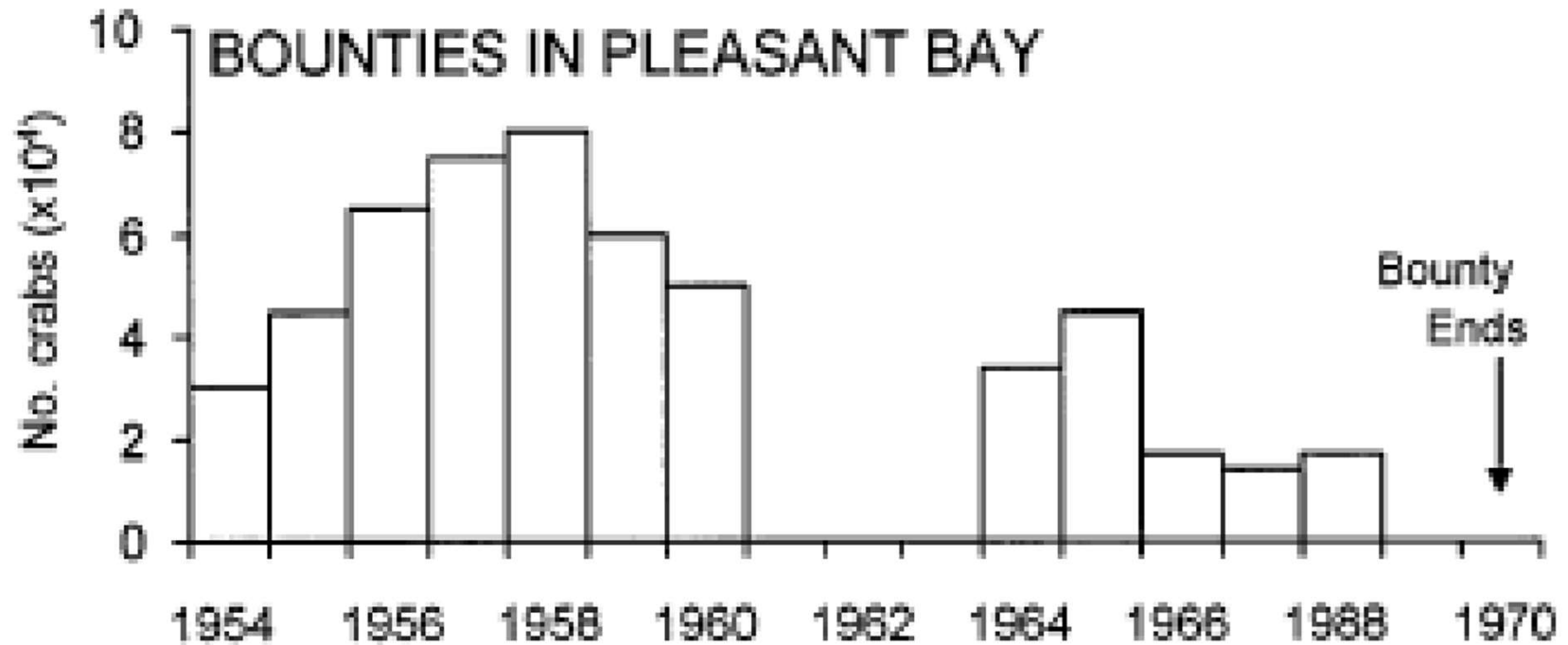


Avg. prosomal width, drawing to scale

Older juveniles and adults



Telson bounties



(Annual Report of the Town of Chatham, Massachusetts reports of the shellfish warden 1952– 1976)

Mixed diet

Prey Category	Instar									
	2	3	5	6	7	8	9	10	11	
Bivalves	-	-	11	22	20	22	16	11	17	
Gastropods	-	-	14	27	24	27	20	13	21	
Crustaceans/ Polychaetes	-	-	44	56	63	79	87	84	95	
Benthic POM	21	<100	100	100	99	74	77	64	70	
Suspended POM	100	<100	23	42	34	31	18	9	16	

Why are horseshoe crabs valuable?

- Eggs
- Blood
- Vision
- Bait



Fuel for migration



National Zoo

Valuable blood



Lateral inhibition



Bait harvest



MA/RI regulations

- Minimum size – 7"
- Bait Quotas
- Biomedical Quotas
- Delay in harvest – Closures around full and new moons (RI no harvest in May)

Advocacy

- List the species?
- No harvest? Harvest only males?

Boston Globe, 7/17/2022

**They're bleeding horseshoe crabs on the Cape
and some advocates are worried**

Cape and Island NPR, 7/14/2023

**Horseshoe crabs gain protections
under new state rules**



Questions?