

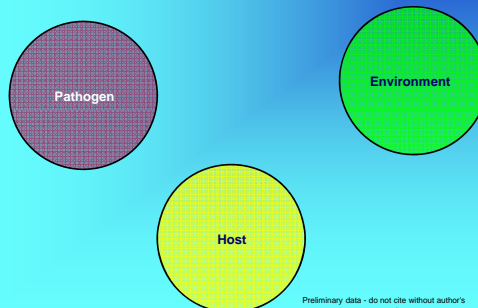
Understanding lobster disease by causing it – the case of shell disease in US lobsters

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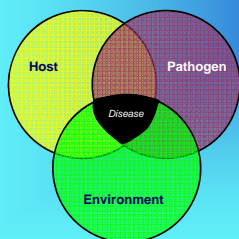
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What causes disease?



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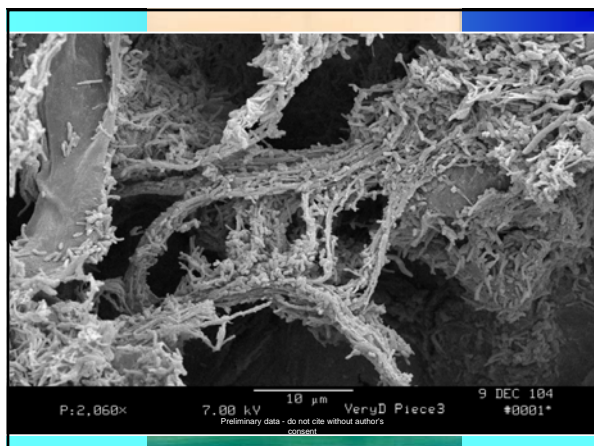
What causes disease?



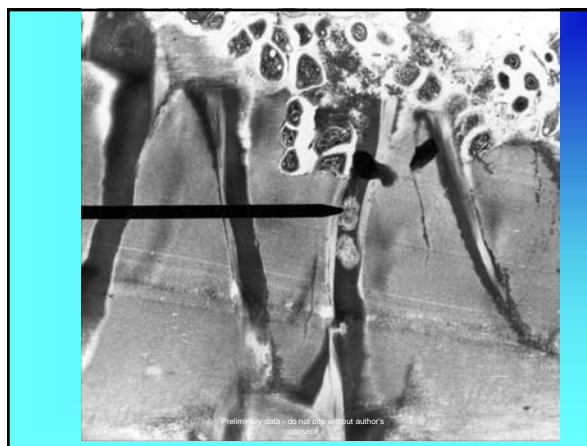
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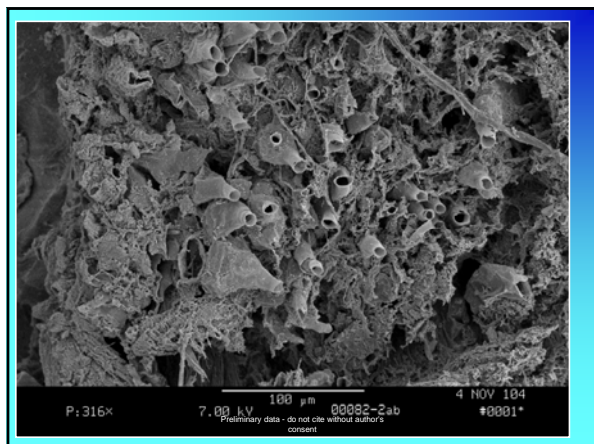
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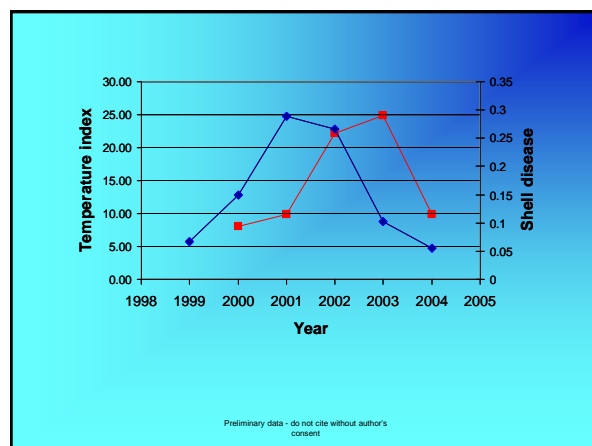
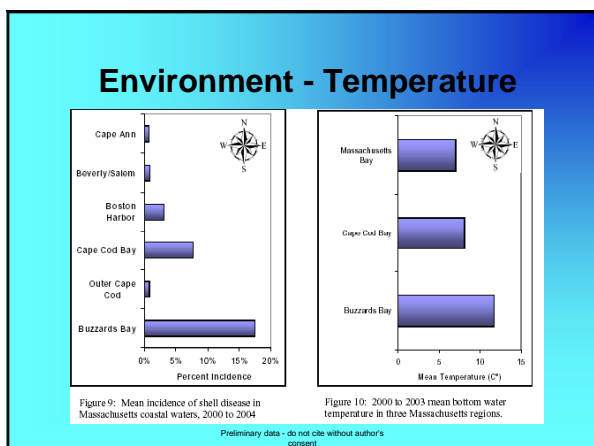
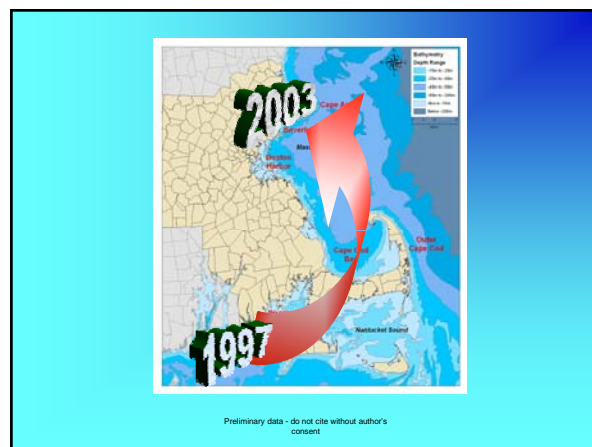
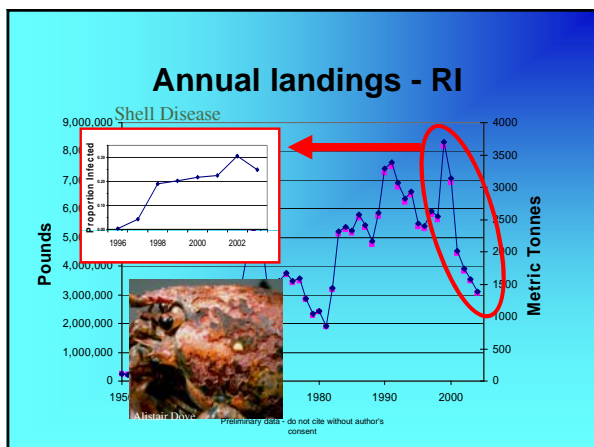
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Lobsters more likely to show shell disease are:

- Caused by common marine bacteria
- Older vs younger
- Females vs males
- Stressed
 - Lower hemolymph (blood) values
 - Phosphorus
 - Calcium
 - Protein

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NEAq and lobsters



To present, promote and protect the world of water

- Work with industry
- Produce animals
- Research
 - Shell growth
 - Nutrition
 - Growth and health
- Aquaculture




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Rearing Juveniles

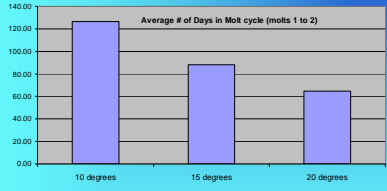


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Effect of temperature

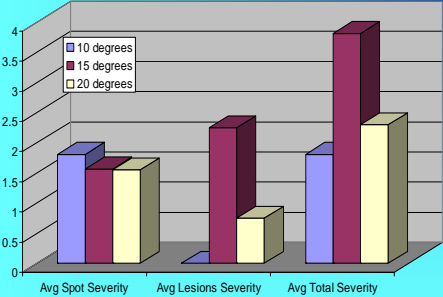


Average # of Days in Molt cycle (molts 1 to 2)

- Both bacteria and lobsters grow faster at higher temperatures

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Shell disease at temperature

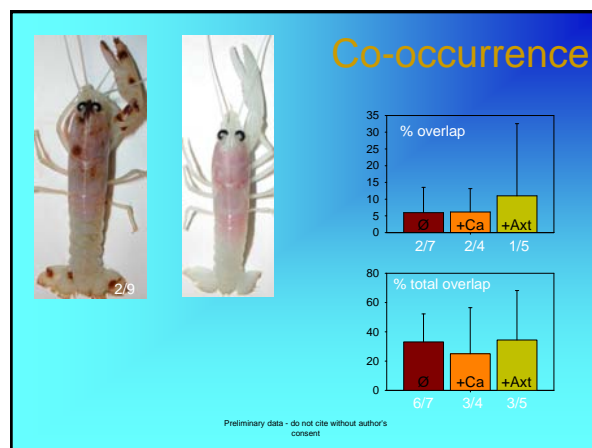
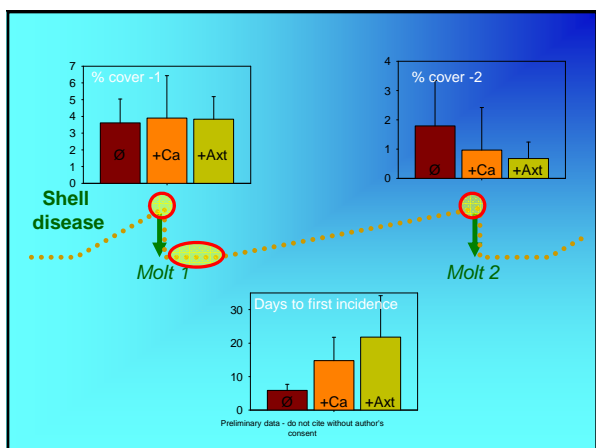
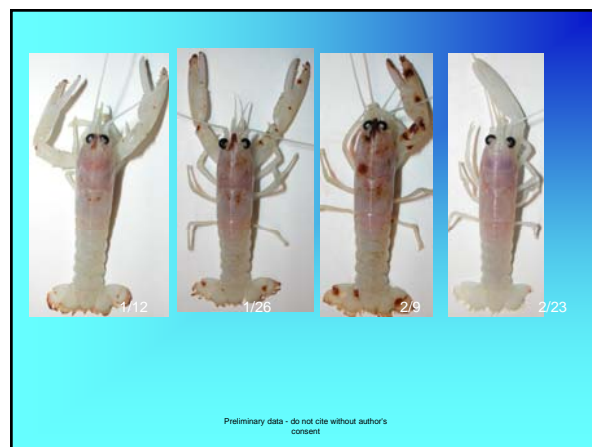
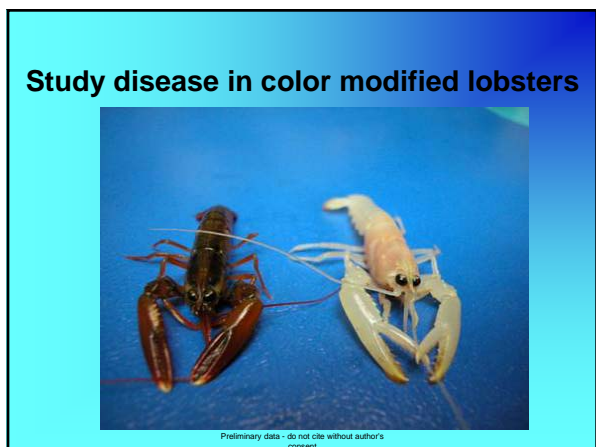
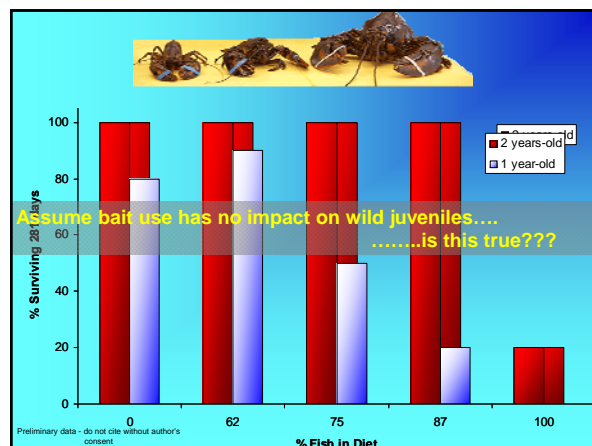
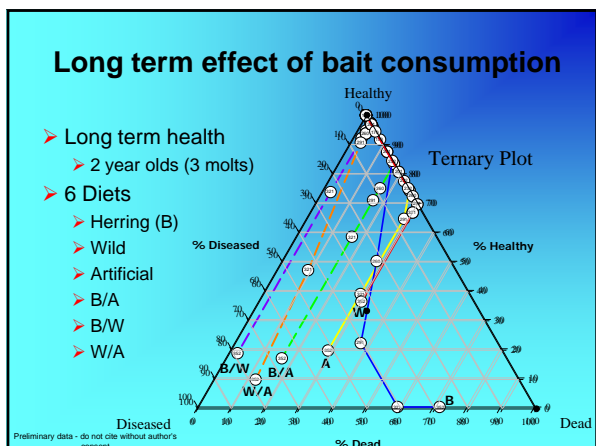


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3 pounds of bait are used for each pound of lobster caught
 -almost every lobster fisher JGR Bill Adler GMEA




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Summary

- Can now cause shell disease "on demand"
- Combination of
 - Pathogen
 - Common bacteria
 - Environment
 - Host susceptibility
 - Nutrition
- Similar to a common cold
- Need to pay attention to factors that can increase host susceptibility



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