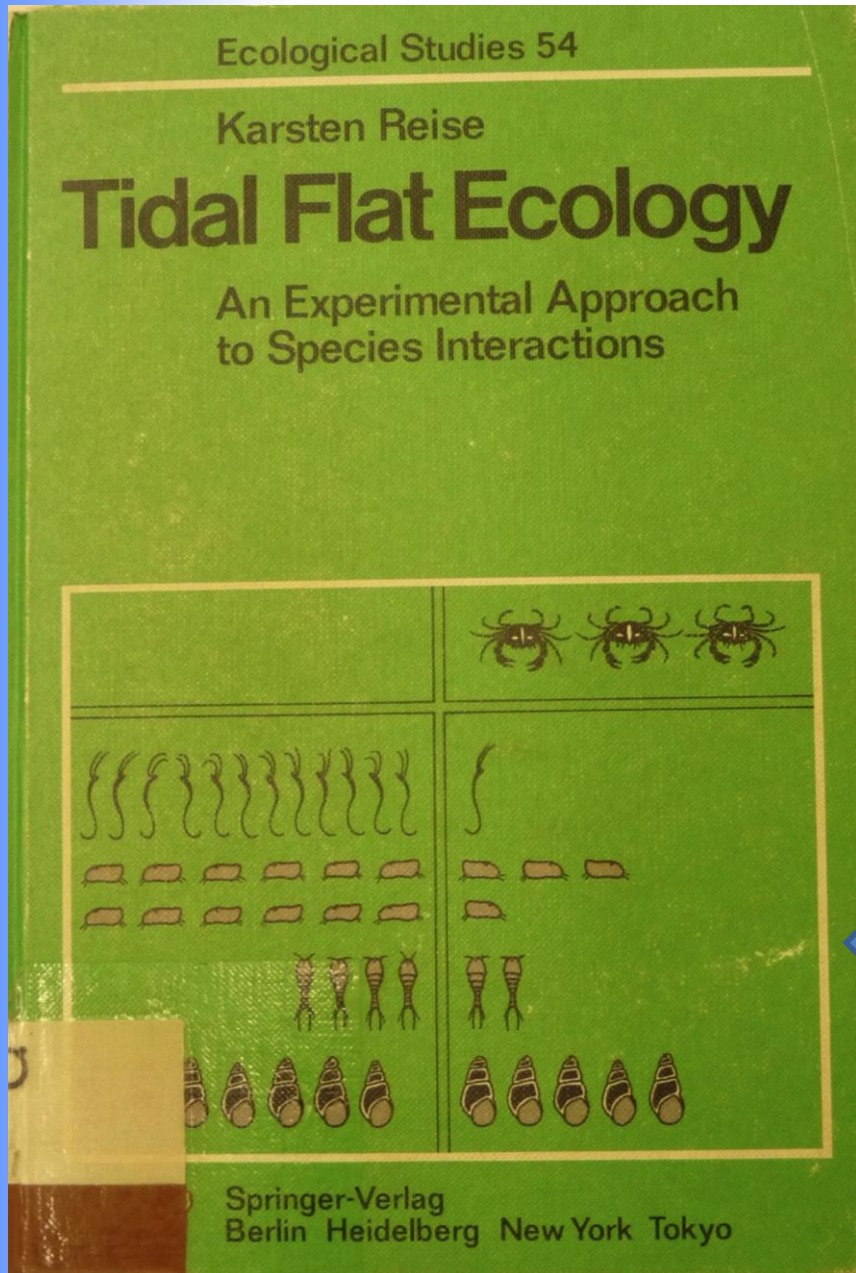


Do alien species alter native predator-prey interactions ?



Christian Buschbaum, Kees Camphuysen, Felicitas Demann, Anouk Goedknecht, Claudia Gräfe,
Victoria Kremser, David Thielges, Mathias Wegner,

How important is predation in the Wadden Sea?



1985

Effects of exotic species on predation pressure – population level



American slipper limpet *Crepidula fornicata*



Starfish *Asterias rubens*

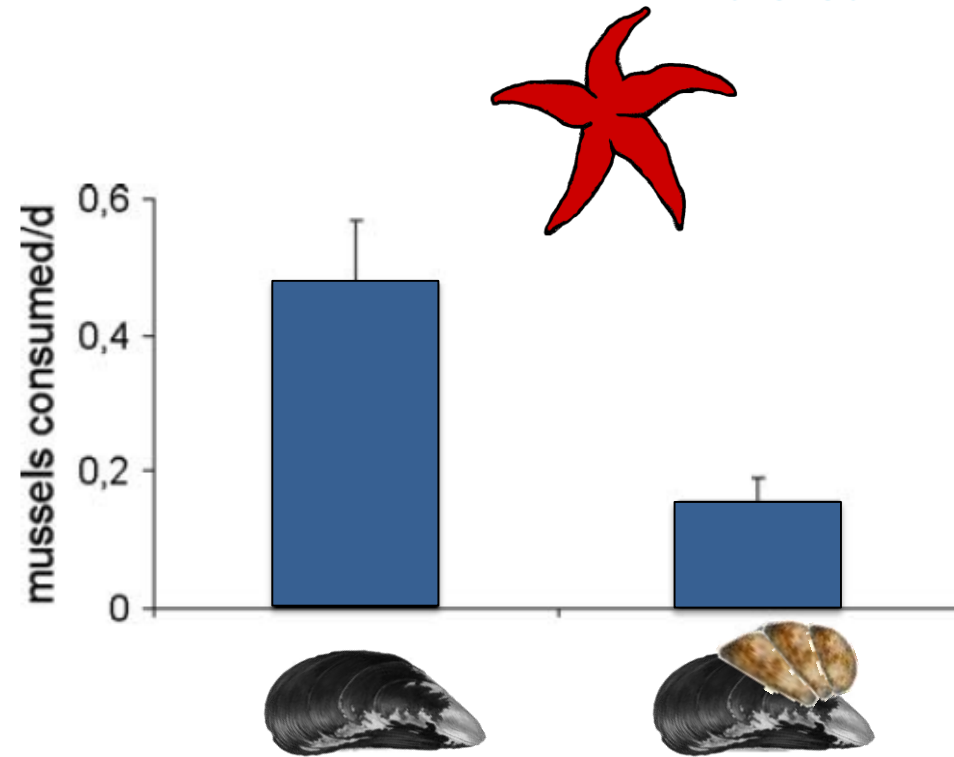


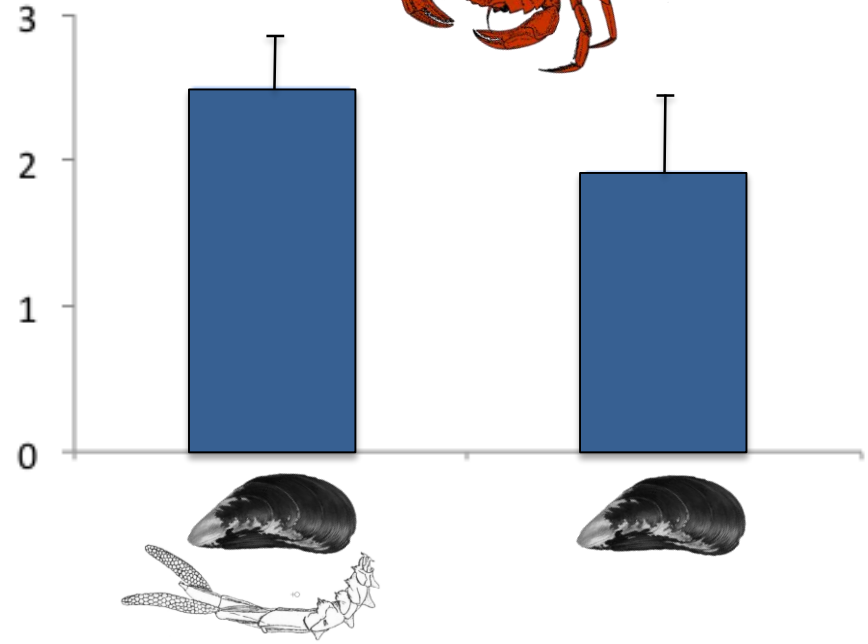
Figure 1. Mean number (+SE) of mussels (*Mytilus edulis*) with and without *Crepidula fornicata* epigrowth consumed by sea stars (*Asterias rubens*) per day. Left: unfouled mussels, right: mussels with *C. fornicata* epigrowth. Duration of the experiment was 14 days. $n = 6$ sea stars.

Thieltges *Hydrobiologia* (2005)
Thieltges et al. *Biol Invas* (2006)

Effects of exotic species on predation pressure – population level



mussels consumed/crab 48h



laboratory aquarium experiment; n=12 crabs
infested and uninfested mussels were simultaneously offered
duration 48h

associated non-native species may strongly
affect predator prey preferences

Exotic species form new structures – habitat level



Pacific oysters *Crassostrea gigas*
(intertidal area)

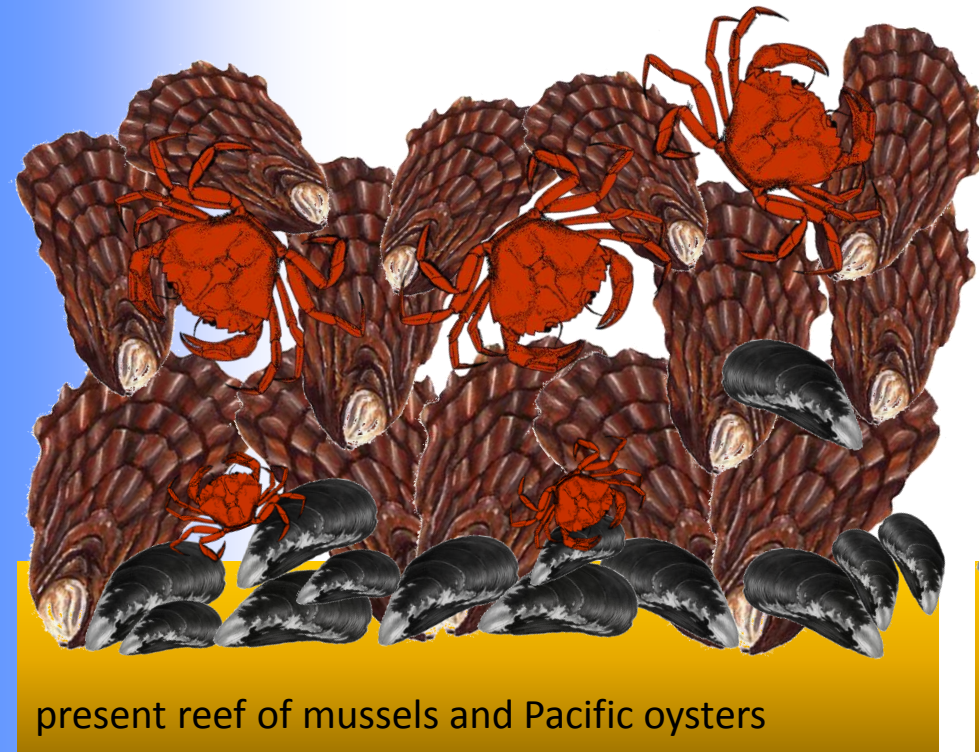
Exotic species form new structures – habitat level

about 250 juvenile (<25mm) *Carcinus maenas* m⁻²



Foto: K. Reise

about 500 juvenile (<25mm) *Carcinus maenas* m⁻²



present reef of mussels and Pacific oysters



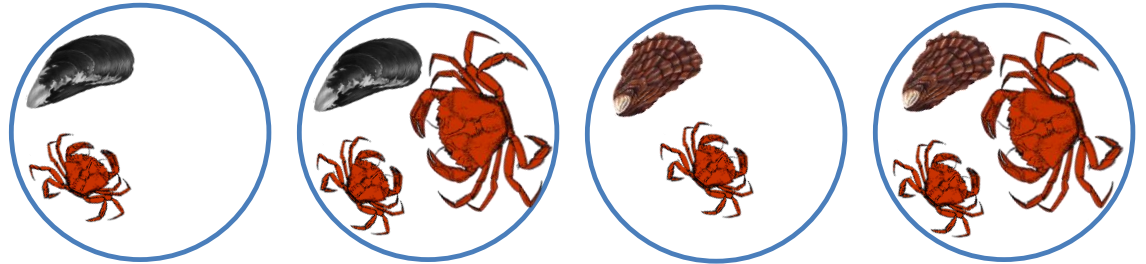
former blue mussel bed



Exotic species form new structures – habitat level

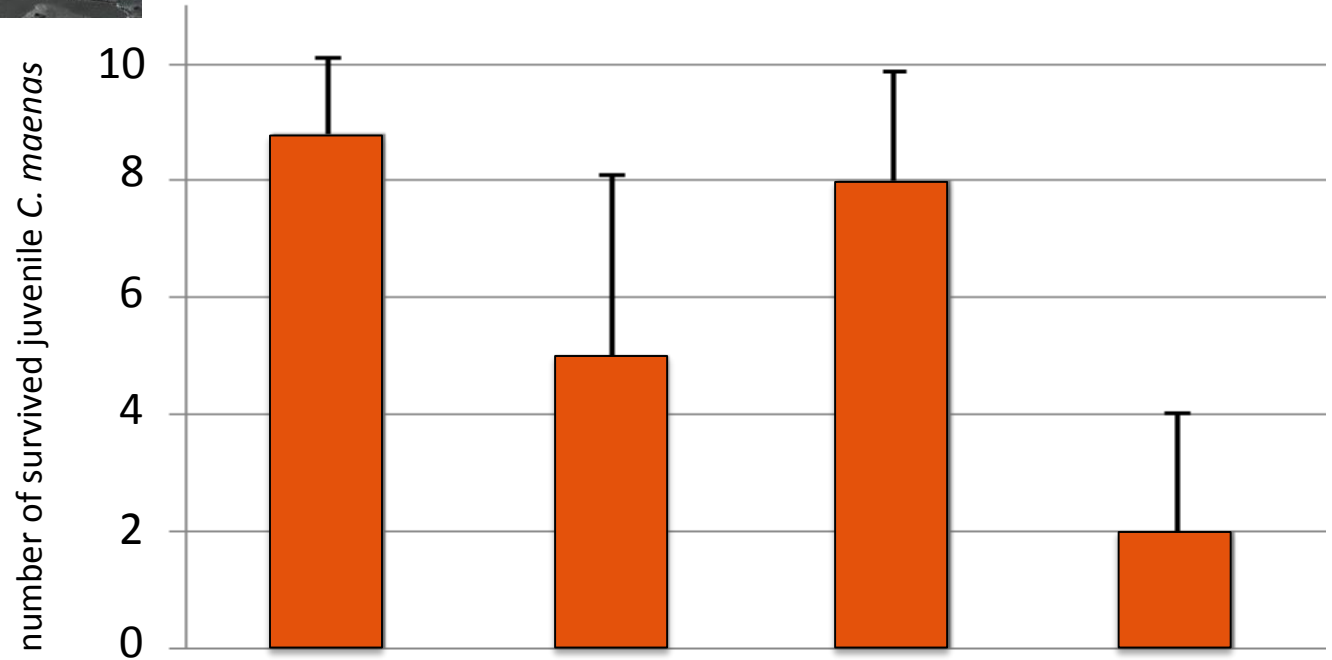


n=5

field experiment, treatments:



 15-25mm (x10)
 40-55mm (x1)
duration 21 days



juvenile *C. maenas* have lost an important nursery ground

Exotic species form new structures – habitat level



Japanese seaweed *Sargassum muticum* (shallow subtidal area)



Exotic species form new structures – habitat level



bed of *Sargassum muticum* algae



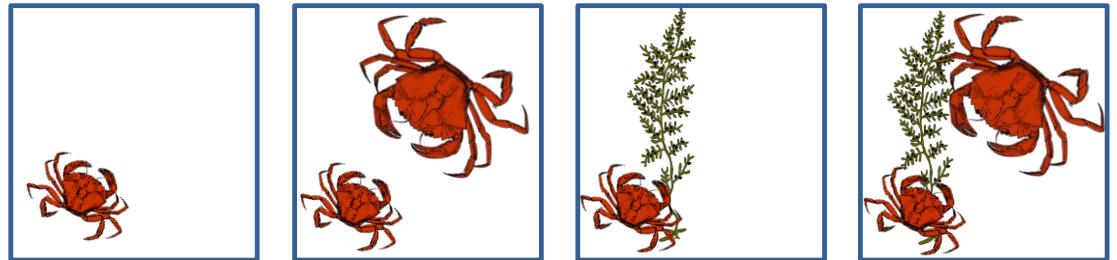
subtidal sandy area without algae



Exotic species form new structures – habitat level

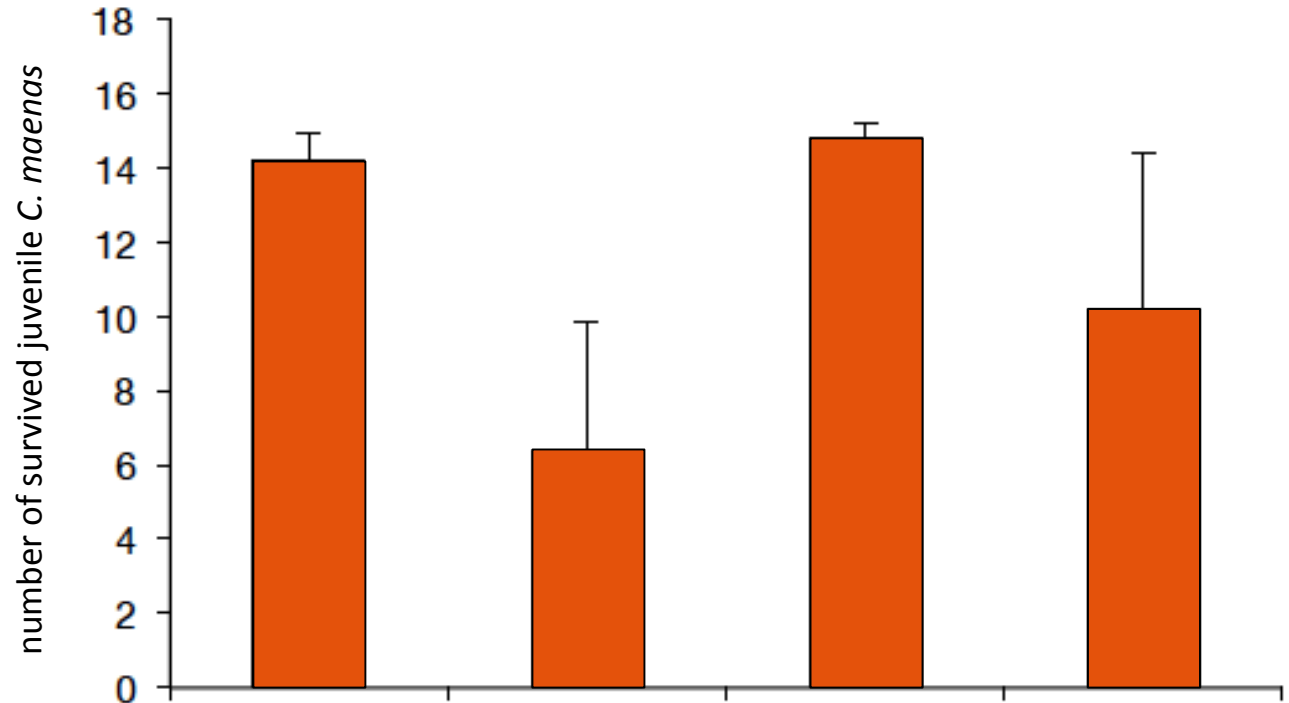


laboratory experiment, treatments:

n=5



 15-25mm (x15)
 50-60mm (x1)
duration 10 days



juvenile *C. maenas* have won a nursery ground

Conclusions

Close associations between prey organisms and neobiota may alter predator preferences



.....

Ecosystem engineering alien organisms provide new habitats with numerous new and changing species interactions



.....

Knowledge on newly developed predator-prey interactions provides important information for food web analyses

Thank you



Thank you



Exotic species as a food source

plan 2015 – oyster predation by gulls



Exotic species as a food source

To what extent do Herring gulls feed upon Pacific oysters?

