

# Temperaturens betydning for utvikling av lakselus larver

Sussie Dalvin, Francisca Samsing, Tone Vågseth, Ingrid Johnsen, Lars Stien, Tim Dempster, Frode Oppedal

The effect of extreme water temperatures on the development times of salmon lice (*Lepeophtheirus salmonis*) planktonic stages, and its influence on dispersal, size and reproductive outputs

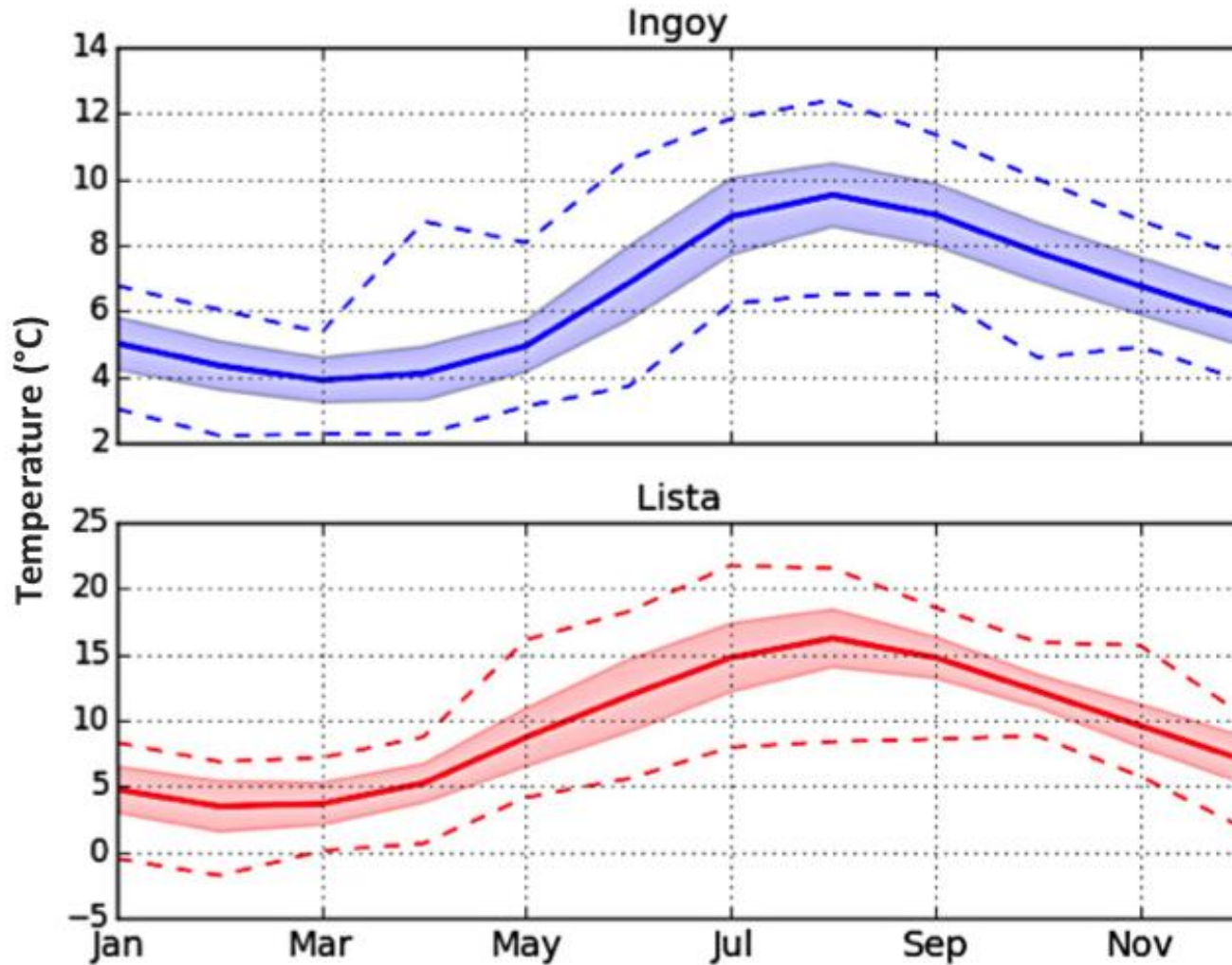
Basert på studie finansiert av  
FHF  
IMR  
UniMelb

# Lakselus larve - frittlevende

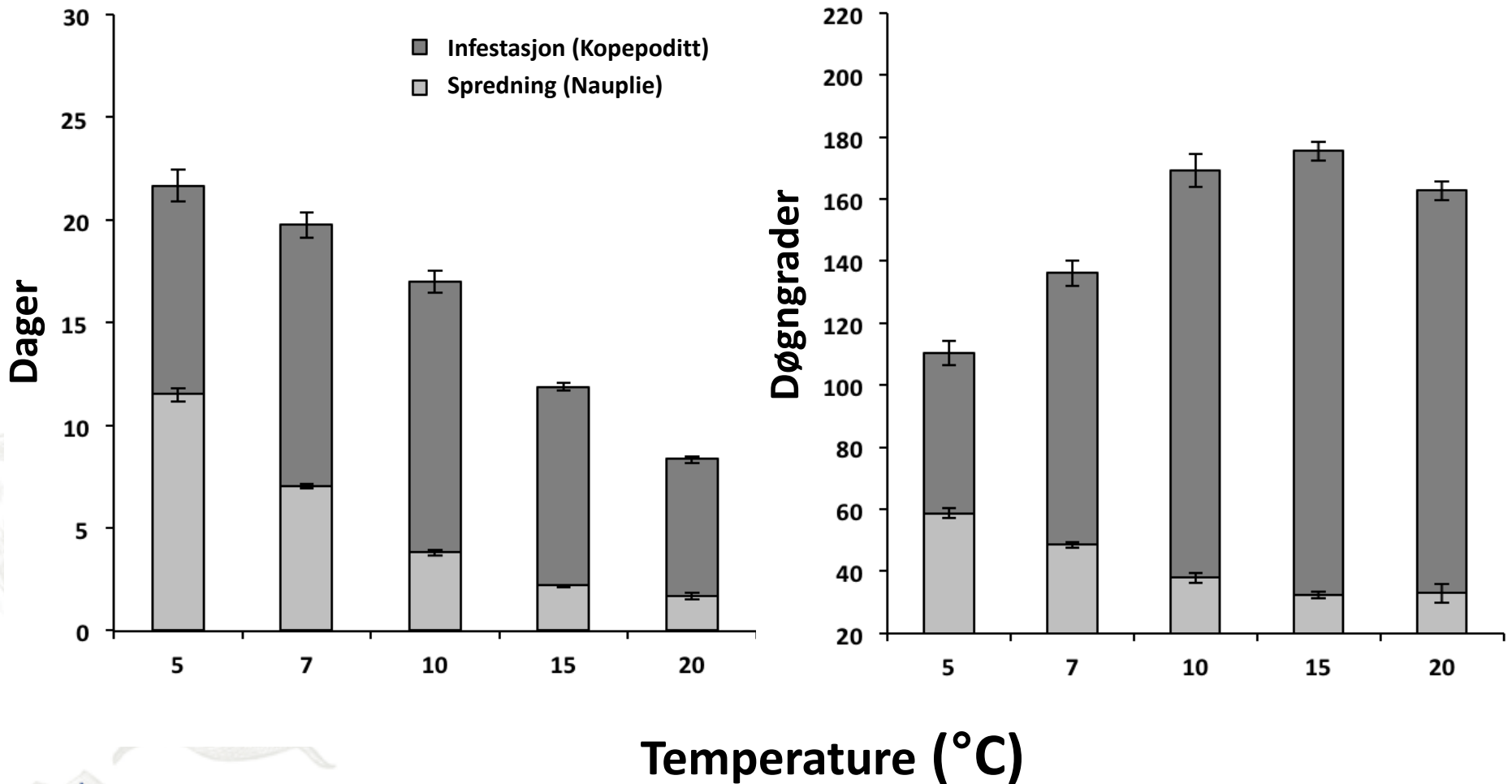
- Spredningsvindu
    - Nauplius I og II
      - Hvor lenge?
        - 30 døgngader?
  - Infestasjonsvindu
    - Kopepoditt
      - Hvor lenge?
        - 120 døgngader?
- 
- Modeller blir mer presise
  - Infestasjonssuksess
  - Eksempel på spredning



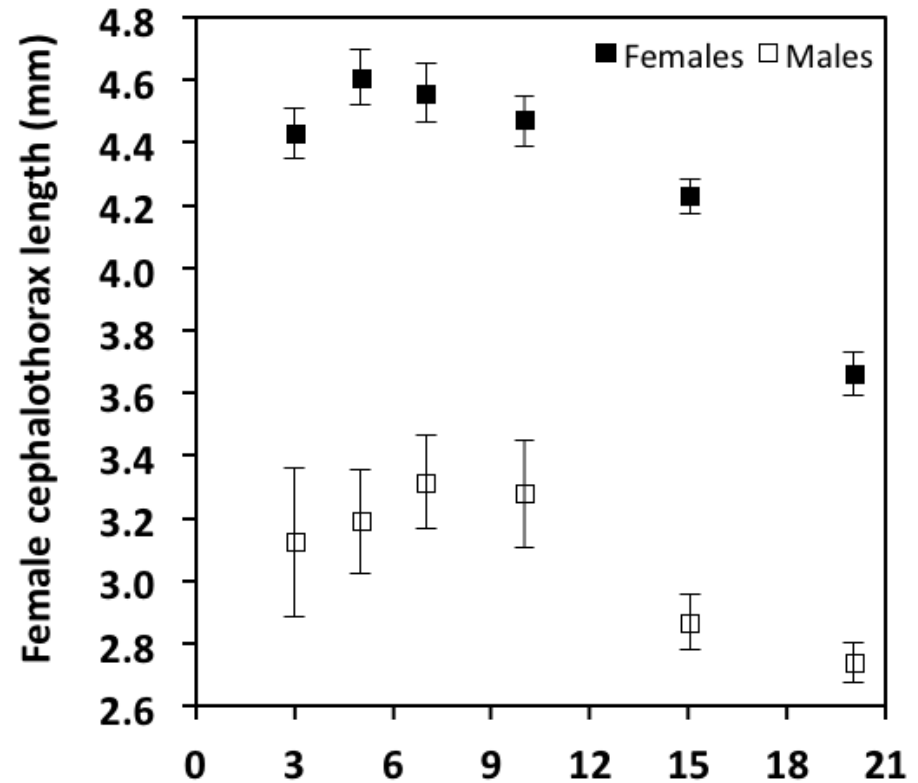
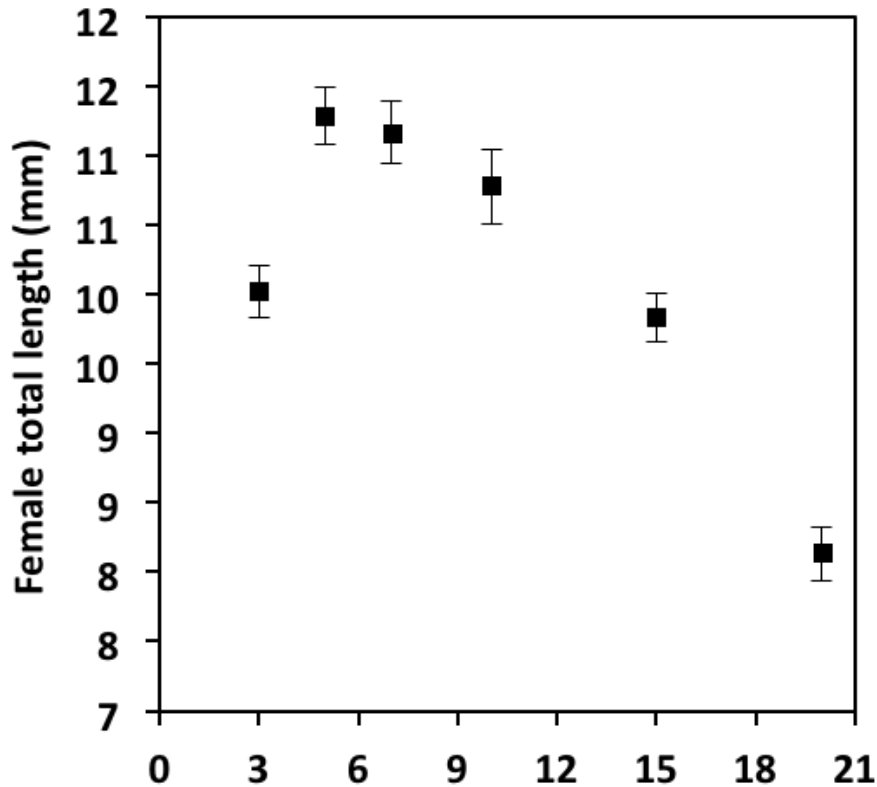
# Temperatur i Norge



# Tidsvindu for spredning og infestasjon



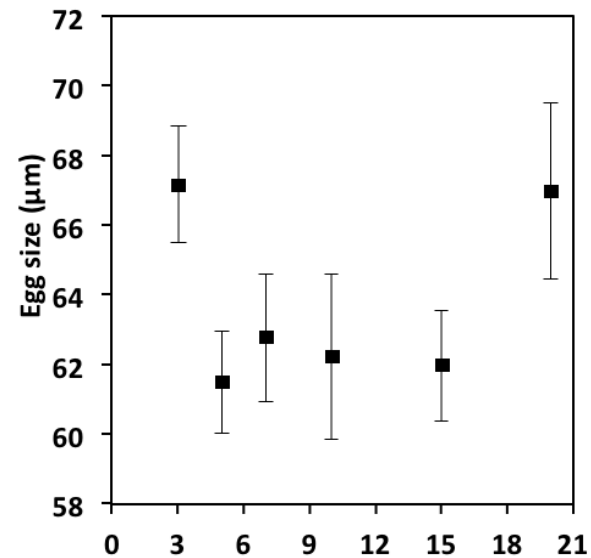
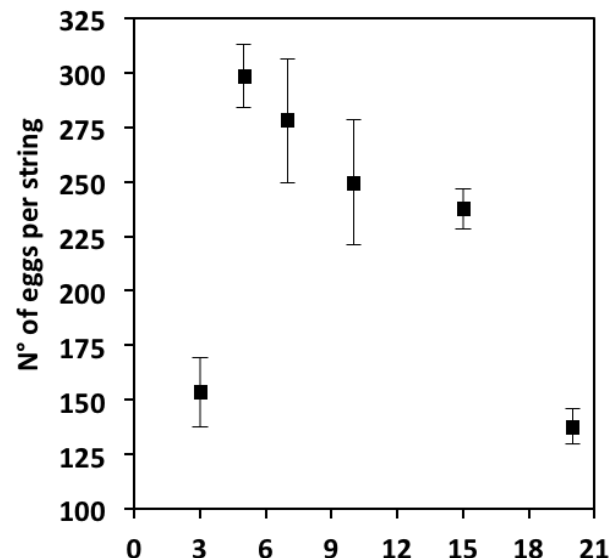
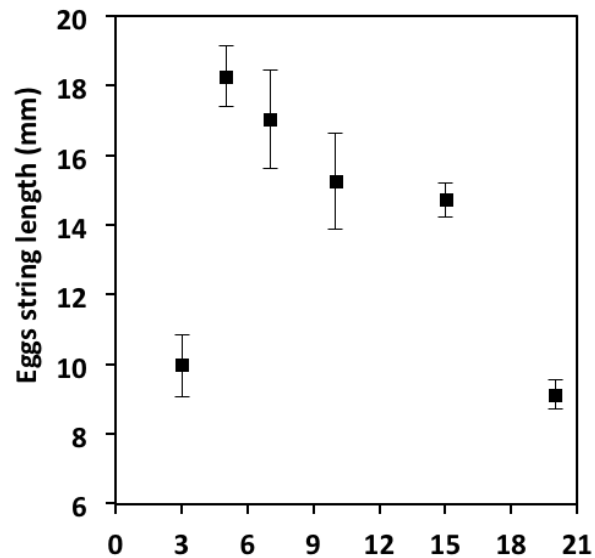
# Lusens størrelse med temperatur



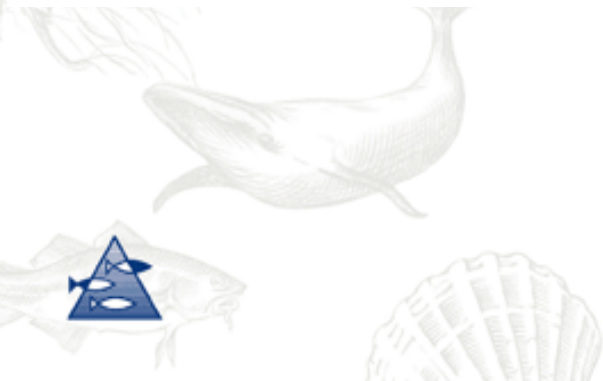
Temperature (°C)



# Egg streng lengde/ antall egg/ eggstørrelse ved ulik temperatur

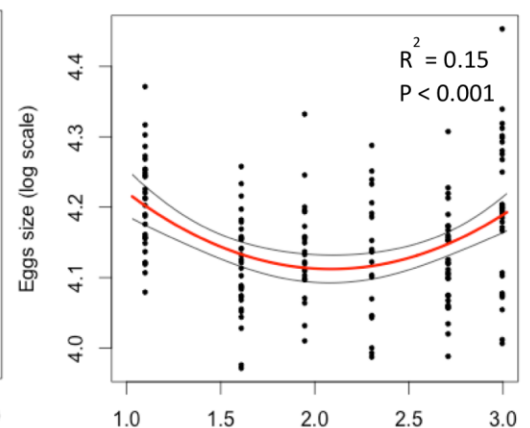
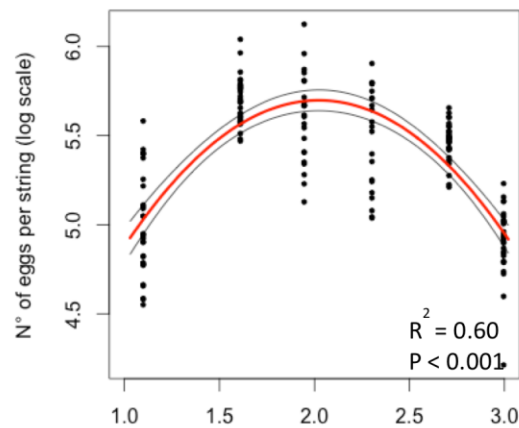
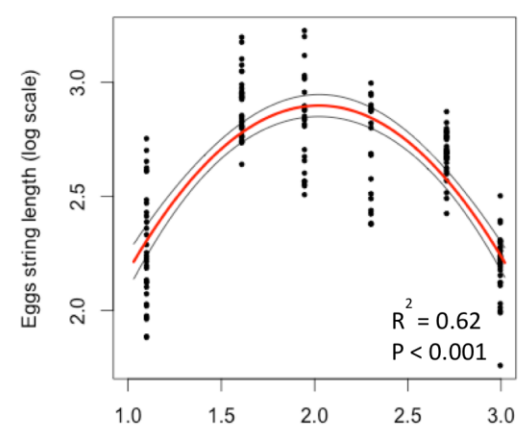
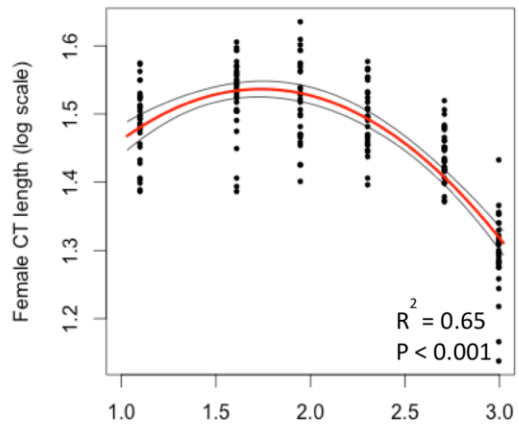
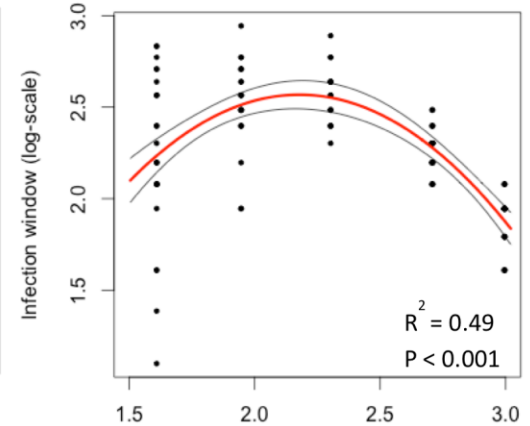
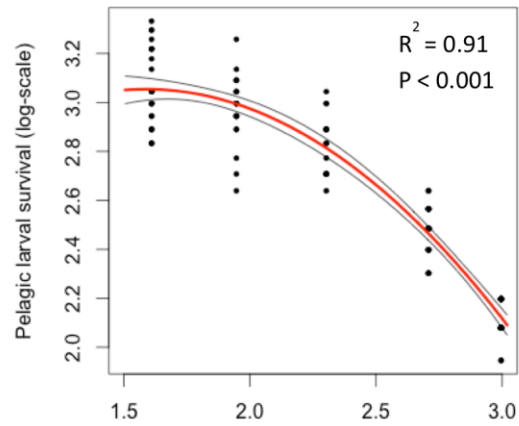


Temperature (°C)



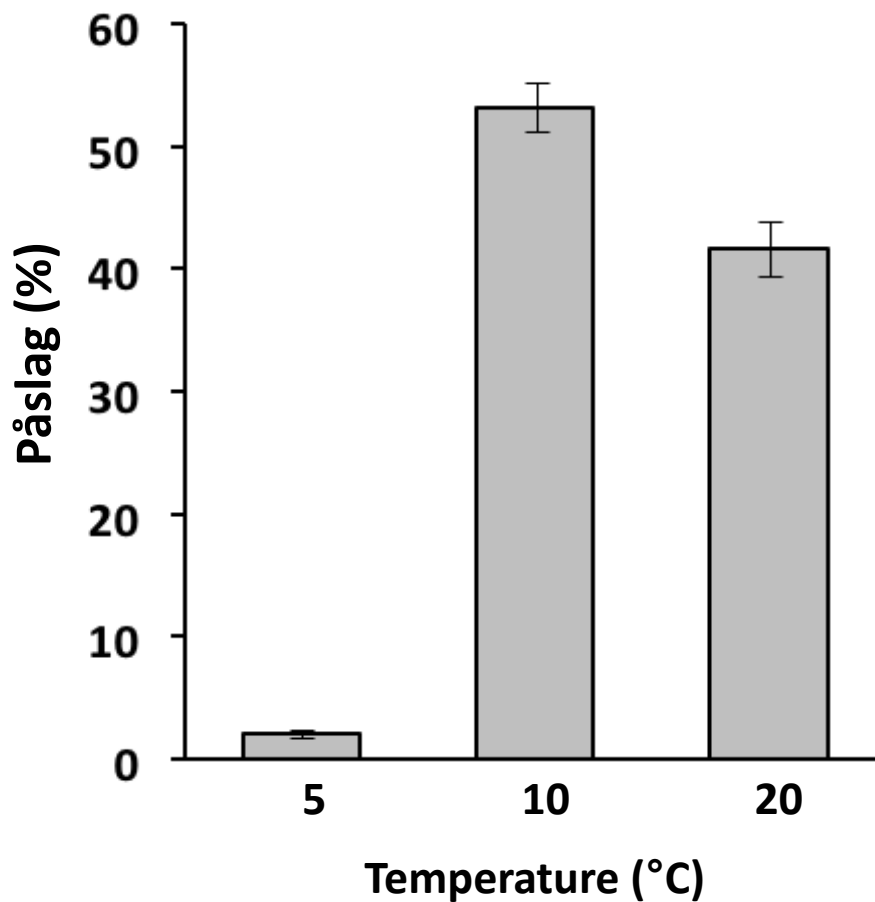
# Lakselus sin utvikling med temperatur stemmer med andre sammenlignbare organismer

- *forutsigbar utvikling*



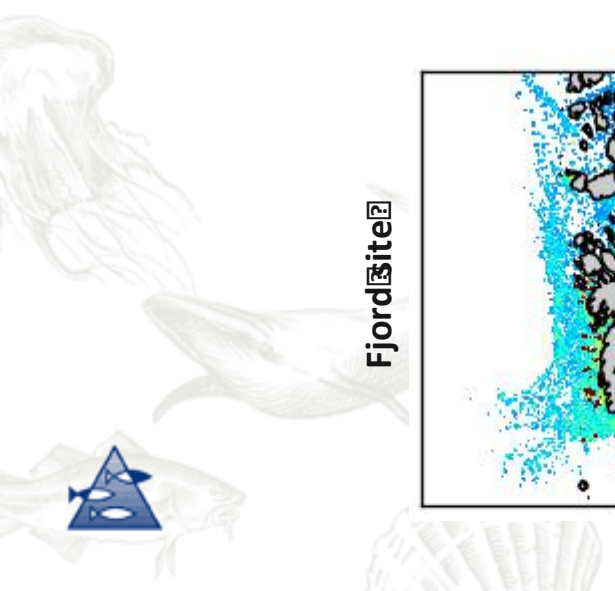
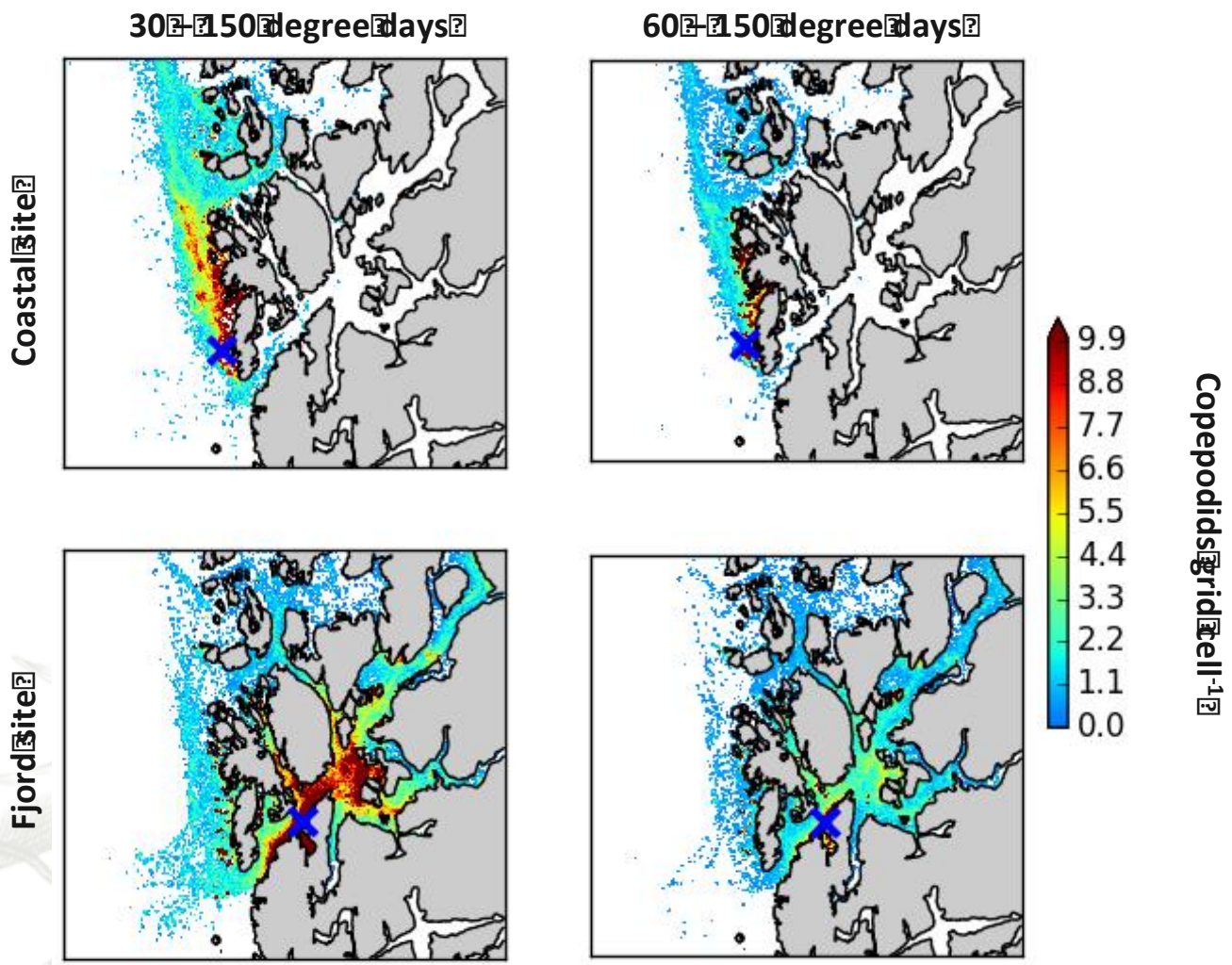
# Infestasjons suksess (% påslag)

*% av tilført kopepoditter som setter seg på en vert*



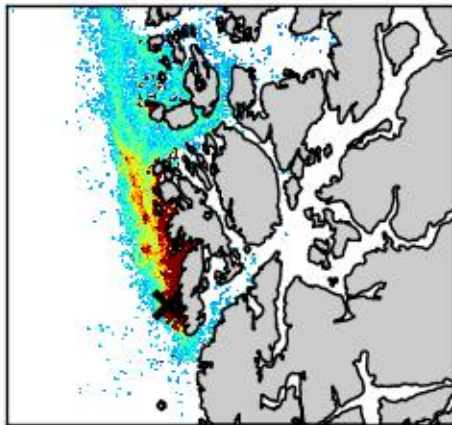


# Eks. 1: Spredning gitt 30 eller 60 døgngrader som nauplius, 1 måned midtvinter, utslipp av 10 lus/ time

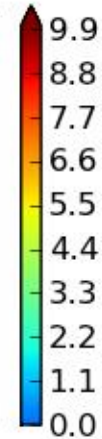
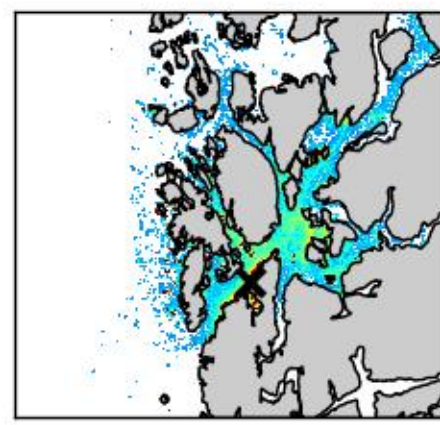
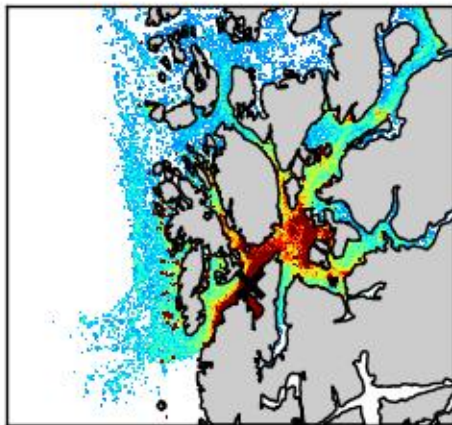
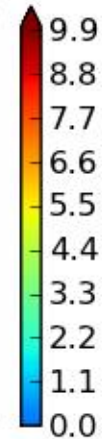
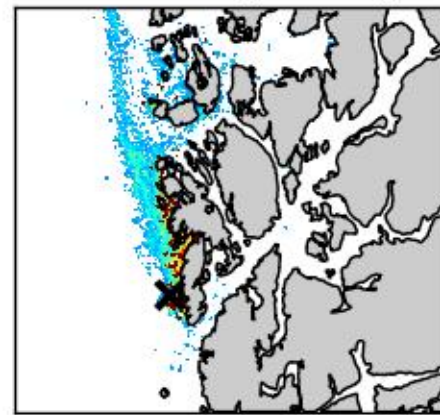


# Eks. 2: Spredning 30/ 60 døgngrader som nauplius, 1 måned midtvinter, utslipp av 10 lus/ time. 160/105 døgngrader total levetid

30-160 degree days



60-105 degree days



# Oppsummert

- Presise tall for luselarvenes utvikling med temperatur (110-180 døgngrader)
  - Spredning (1,7-11,5 dager)
  - Infestasjonstid (6,7-13,2 dager)
  - Bedre presisjon i modeller
    - Spredning, "connectivity", kontroll
  - Redusert infestasjonssuksess når det er kaldt
- Videre arbeid
  - Vi bør undersøke hele livssyklus avhengighet til temperatur, inkl. infestasjonssuksess....tomrom
    - Har det vært seleksjon mot kortere generasjonstid?



Temperature treatment (°C)	Average time before hatching (days)			Duration of salmon lice naupliar stages (I and II) (days)			Infective window (days)			Total duration of lice larval stages (days)		
	Mean	SD	n	Mean	SD	n	Mean	SD	n	Mean	SD	n
20	1.78	0.55	32	1.69	0.90	32	6.66	0.90	32	8.34	0.60	32
15	2.88	1.01	32	2.19	0.40	32	9.68	1.11	31	11.87	1.09	31
10	4.63	1.26	16	3.81	0.66	16	13.19	2.17	16	17.00	2.13	16
7	7.64	3.39	22	7.05	0.58	22	12.73	2.85	22	19.77	2.65	22
5	12.97	7.81	32	11.52	1.72	29	10.15	4.00	26	21.62	9.12	26
3	20.77	7.12	22	nd	nd	nd	nd	nd	nd	nd	nd	nd

Takk for oppmerksomheten

