

# Hva spiser sjøørreten i sjø !

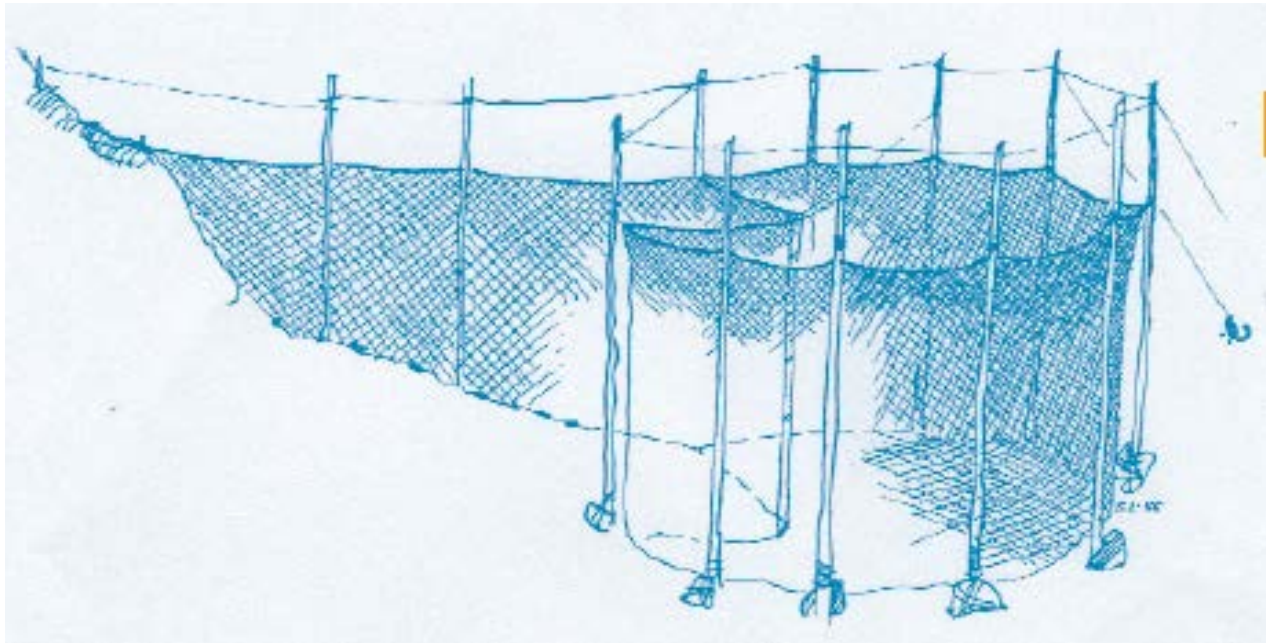


*Programleder Jan A Knutsen,  
HI*

# Bakgrunn for å ha meninger om saken !



# Bunngarn



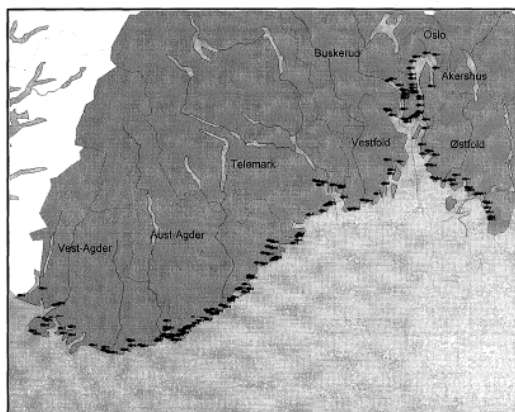
# Bakgrunn for å ha meninger om saken !

*Journal of Fish Biology* (2001) **59**, 533–543

doi:10.1006/jfbi.2001.1662, available online at <http://www.idealibrary.com> on **IDEAL**<sup>®</sup>

Utredning for DN  
Nr. 1996-1

## Forvaltningsplan for sjørret på Skagerrakkysten og i Oslofjorden



Avgitt til Direktoratet for naturforvaltning

## Food of anadromous brown trout at sea

J. A. KNUTSEN\*, H. KNUTSEN†, J. GJØSÆTER\* AND B. JONSSON‡

\*Institute of Marine Research, Flødevigen Marine Research Station, N-4817 His, Norway; †Division of Zoology, Department of Biology, University of Oslo, P. O. Box 1050 Blindern, N-0316 Oslo, Norway and ‡Norwegian Institute For Nature Research, P. O. Box 136 Sentrum, N-0105 Oslo, Norway

*Journal of Fish Biology* (2004) **64**, 89–99

doi:10.1046/j.1095-8649.2003.00285.x, available online at <http://www.blackwell-synergy.com>

## Marine feeding of anadromous *Salmo trutta* during winter

J. A. KNUTSEN\*†, H. KNUTSEN†‡, E. M. OLSEN†  
AND B. JONSSON§

†Institute of Marine Research, Department of Coastal Zone, Flødevigen Marine Research Station, N-4817 His, Norway, ‡Division of Zoology, Department of Biology, University of Oslo, P. O. Box 1050 Blindern, N-0316 Oslo, Norway and §Norwegian Institute for Nature Research, P. O. Box 736 Sentrum, N-0105 Oslo, Norway

*Ecology of Freshwater Fish* 2006: 15: 446–452  
Printed in Singapore. All rights reserved

© 2006 The Authors  
Journal compilation © 2006 Blackwell Munksgaard

ECOLOGY OF  
FRESHWATER FISH

## Sjørretguide Aust Agder

## Seasonal variation in marine growth of sea trout, *Salmo trutta*, in coastal Skagerrak

Olsen EM, Knutsen H, Simonsen JH, Jonsson B, Knutsen JA. Seasonal variation in marine growth of sea trout, *Salmo trutta*, in coastal Skagerrak. *Ecology of Freshwater Fish* 2006: 15: 446–452. © 2006 The Authors. Journal compilation © 2006 Blackwell Munksgaard

Abstract – Sea trout (*Salmo trutta*) originating from small coastal streams can be found at sea throughout the year, in contrast to conspecifics from larger rivers, which typically spend the autumn and winter in fresh water.

**E. M. Olsen<sup>1</sup>, H. Knutsen<sup>2</sup>,  
J. H. Simonsen<sup>2</sup>, B. Jonsson<sup>3</sup>,  
J. A. Knutsen<sup>2</sup>**

<sup>1</sup>Centre for Ecological and Evolutionary Synthesis, Department of Biology, University of Oslo, Oslo, Norway, <sup>2</sup>Institute of Marine Research, Flødevigen, Norway, <sup>3</sup>Norwegian Institute for Nature Research, Oslo, Norway

# Status for sjøørretbestanden

Har sjøørreten en fremtid ?

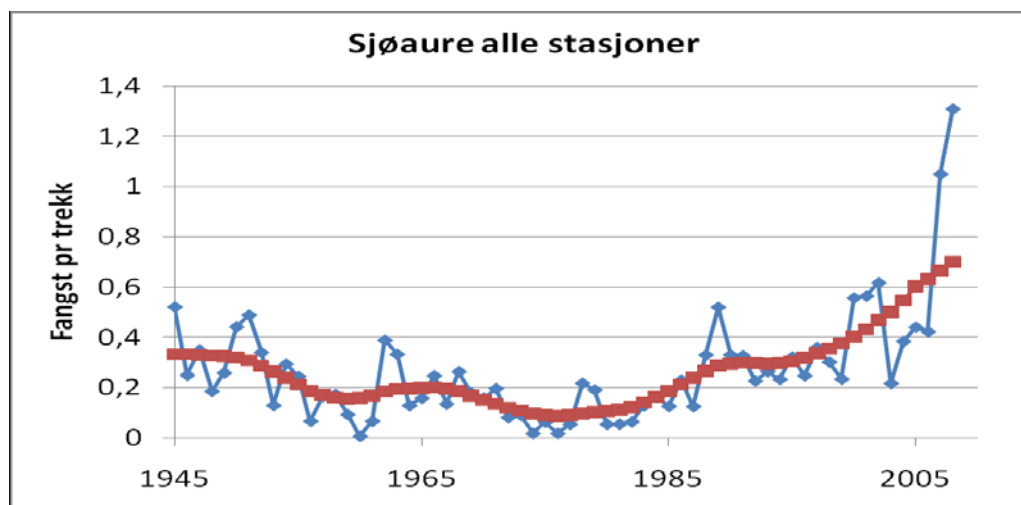
*«Sjøørretfangstene er nær halvert på Vestlandet og i Midt-Norge de siste 5 årene. Det er sterke indikasjoner på at bestandsutviklingen de senere årene skyldes redusert sjøoverlevelse. Hovedårsakene synes å være lakselus fra oppdrettsanlegg sammen med dårligere næringstilgang og klimaendringer» .*

Sammendrag i utredning for Miljødirektoratet



# Men hva med Sørlandet-Agderkysten ?

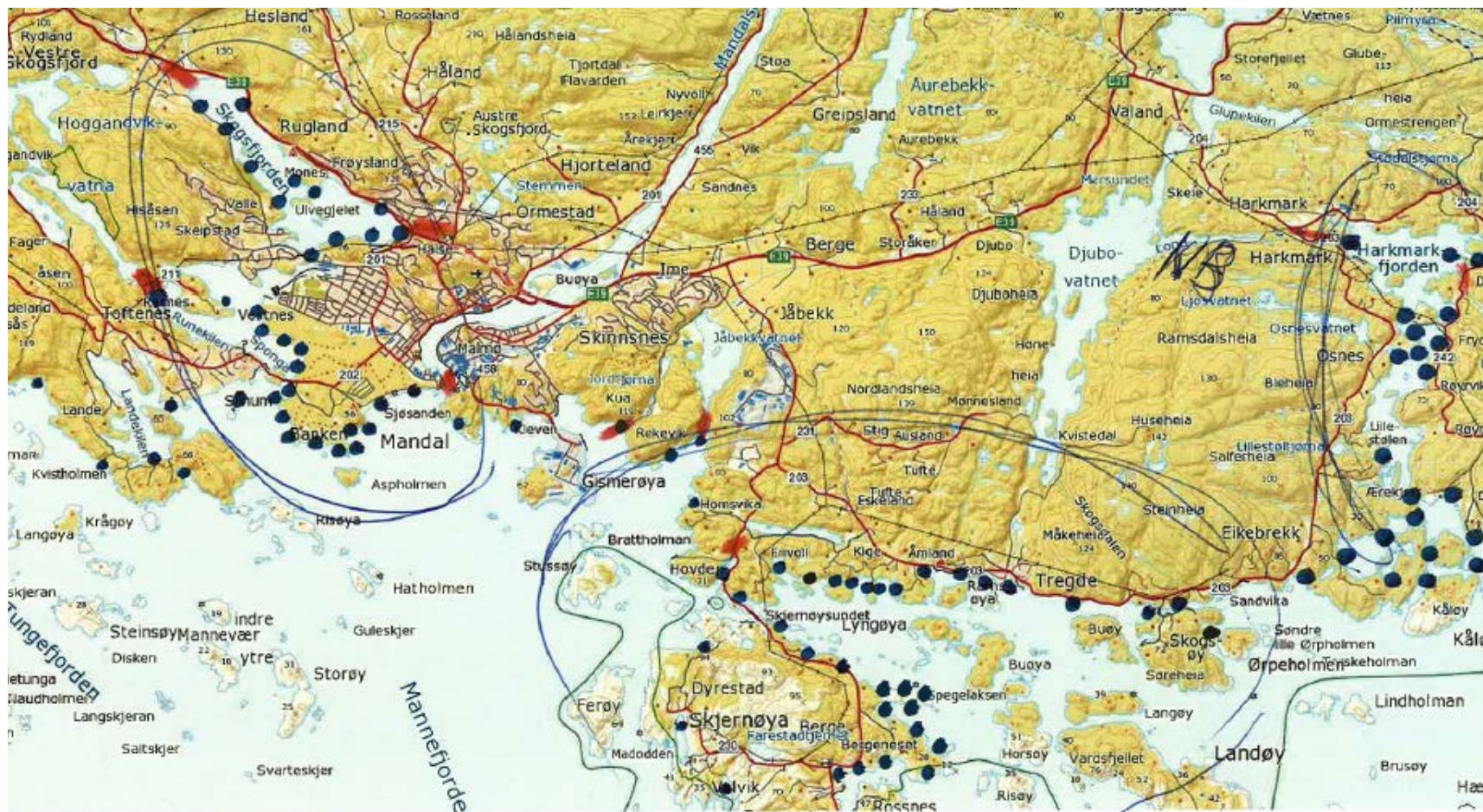
- På Skagerrakkysten er bestandssituasjonen for sjøørret for tiden god.





# Hva med fiskeplasser ?

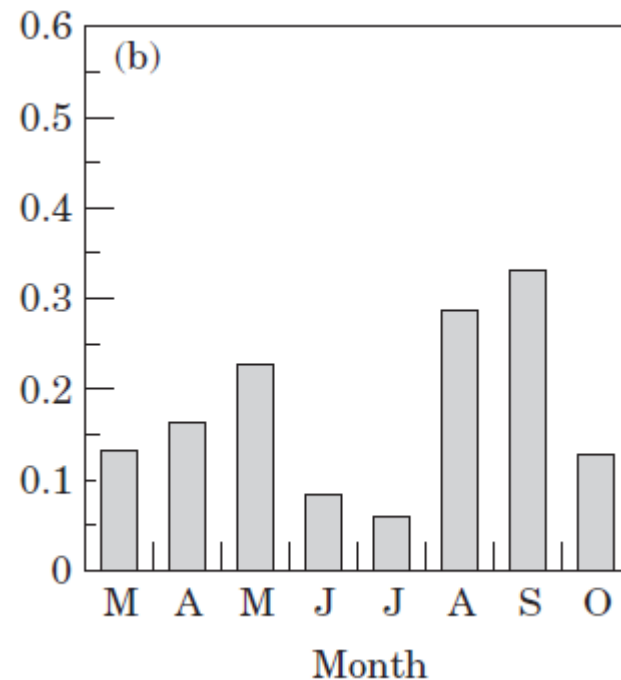
## Eksempel- Mandal



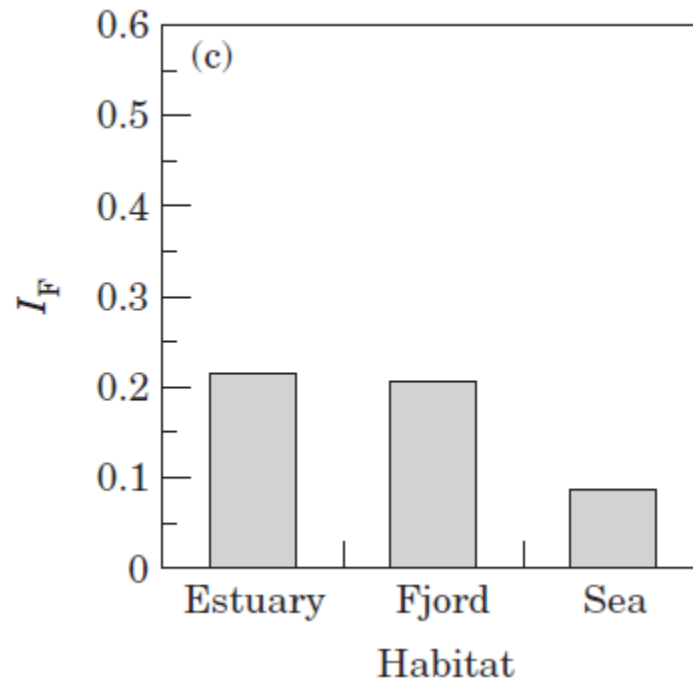


# Når er sjøørreten «på bittet»

- Magefyllingsgrad sier noe om dette !



# Hvor finner sjøørreten mest mat ?

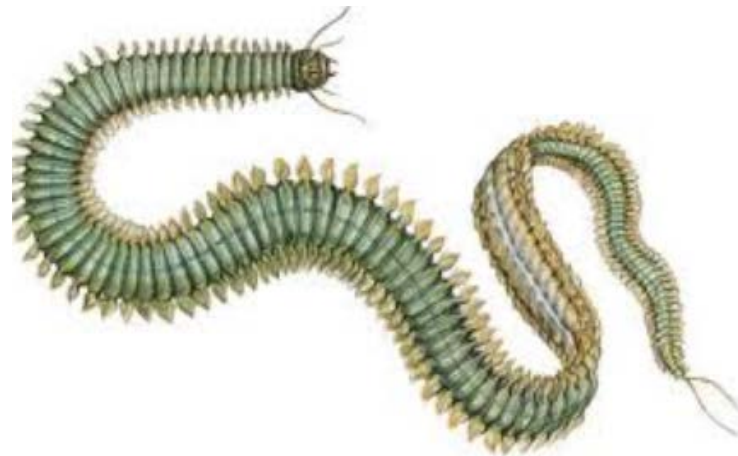


# Hva spiser den ?

TABLE I. Prey categories and species in the stomach content of 661 sea trout on the Norwegian Skagerrak Coast

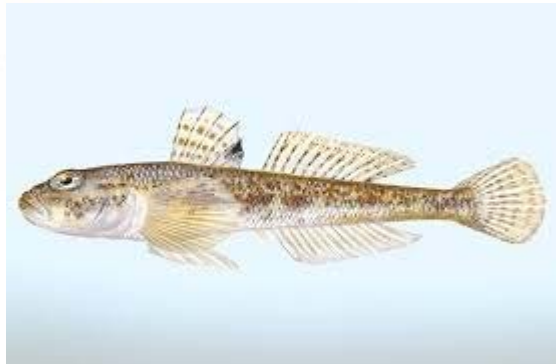
Fishes	Polychaeta	Orthoptera
<i>Sprattus sprattus</i>	<i>Arenicola marina</i>	Ensifera
<i>Anguilla anguilla</i>	<i>Nereis diversicolor</i>	Califera
<i>Clupea harengus</i>	<i>Nereis</i> sp.	Heteroptera
<i>Ammodytes</i> sp.		Pantatomidae
<i>Coryphopterus flavescens</i>	Insects	Miridae
<i>Pomatoschistus minutus</i>	Diptera	Homoptera
<i>Aphia minuta</i>	Nematosera	Aphidae
<i>Spinachia spinachia</i>	Bibionidae	Hymenoptera
	Tipulidae	Formicoidea
Crustacea	Chironomidae	Apidae
<i>Leander squilla</i>	Cyclorrhapa	Neuroptera
<i>Palaemon elegans</i>	Syrphidae	Chrysophidae
<i>Hyas</i> sp.	Orthorrhapa	Thysanura
<i>Idotea baltica</i>	Emphididae	
<i>Idotea granulata</i>	Coleoptera	
<i>Para abyss</i>	Curculionidae	
<i>Calanus</i> sp.	Carabidae	
	Staphylinidae	
Arachnidae	Cantharidae	
	Elateridae	
	Cerambycidae	

# Krepsdyr & børstemark & insekter

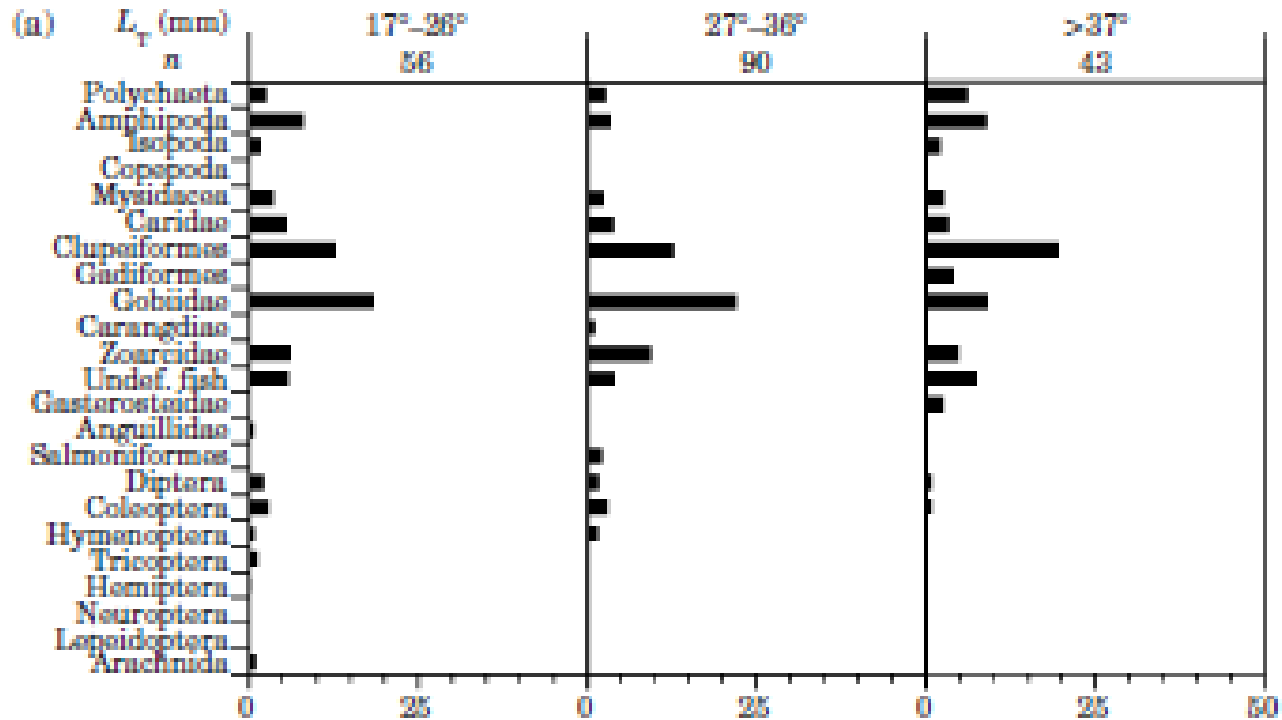


Bredt spekter insekter-  
se vannoverflate  
tidl vår/høst

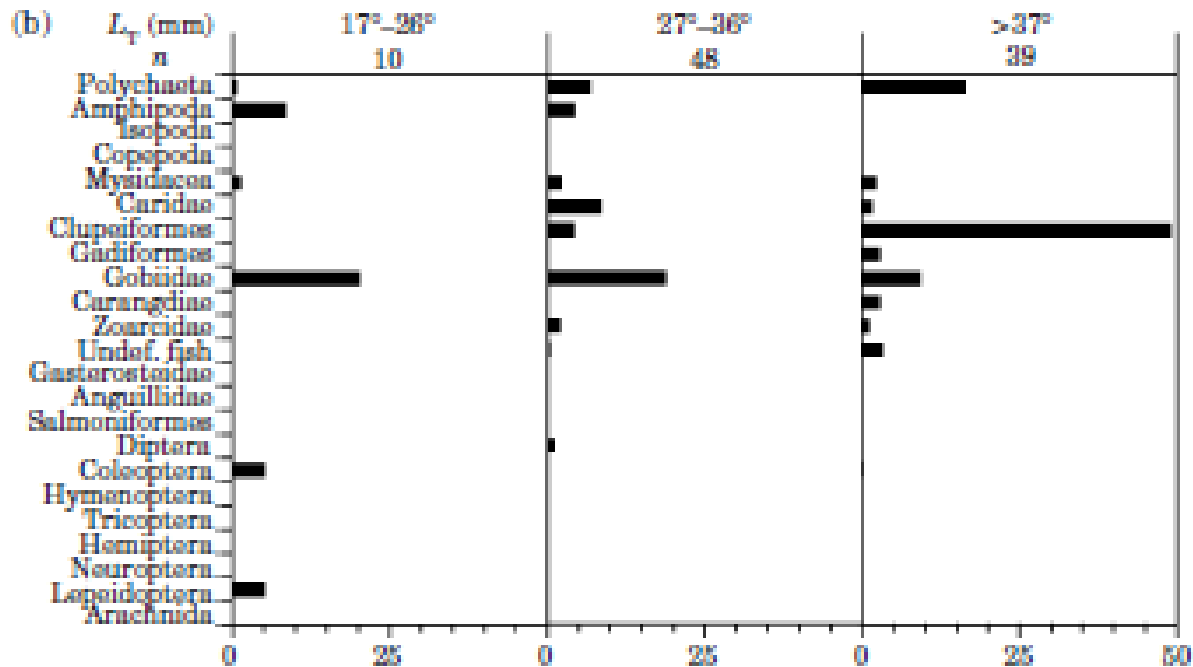
# FISK



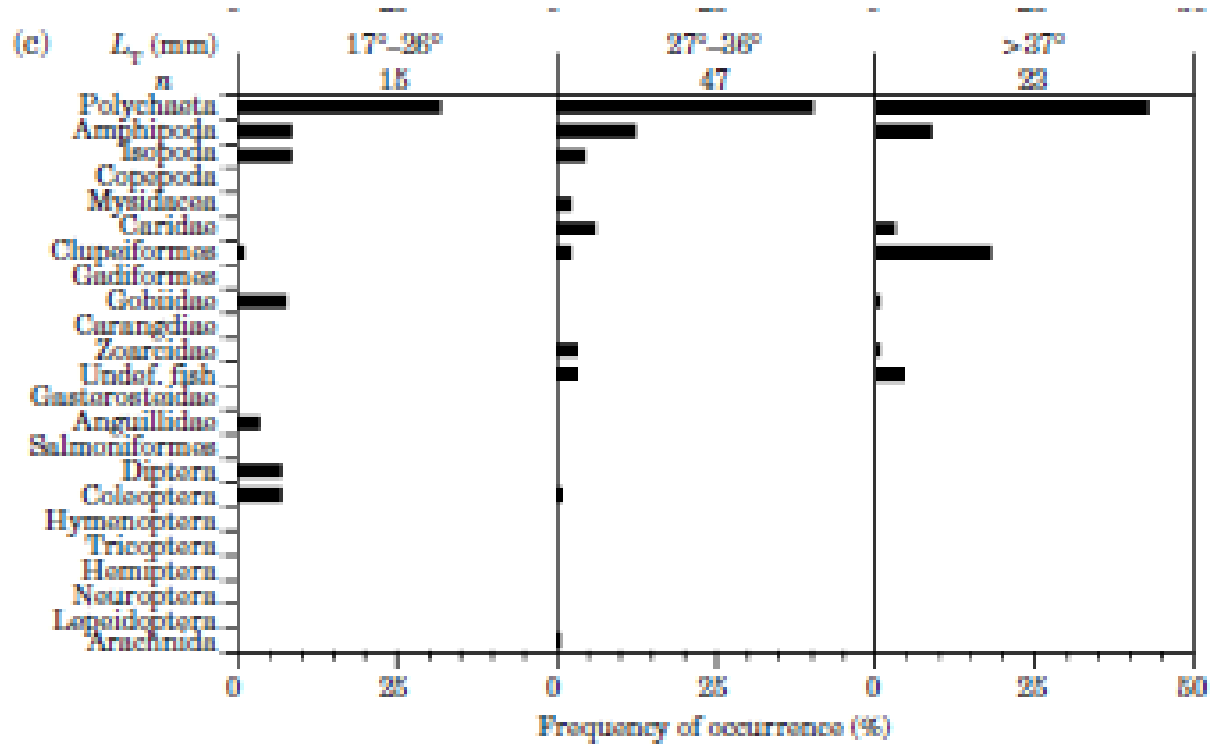
# Vintermat (før jul)



# Stor fisk spiser sild om vinteren



# Børstemark fra feb-mai





# Eksempler på gode fiskeplasser

- Sesongavhengig
- Vinterhalvår- liker ikke kaldt salt vann !
- Høst-gytetid (samlers seg tidlig)
- Vår –tidlig høst- «spisetid»



Data Storage Tag – opereres inn i fiskens bukule og «logger» kontinuerlig data om dybde og vanntemperatur i opptil 2 år.

# Gode fiskeplasser

Brakkvannsområder



Bløtbunnsområder



# Ålegrasområder



# RAET NASJONALPARK



Figure 1 Map of the focal area of the study: the proposed Raet National Park (red dotted line) encompasses the marine