

# Food of toothed whales in the northern North Pacific: Geographic and temporal variation

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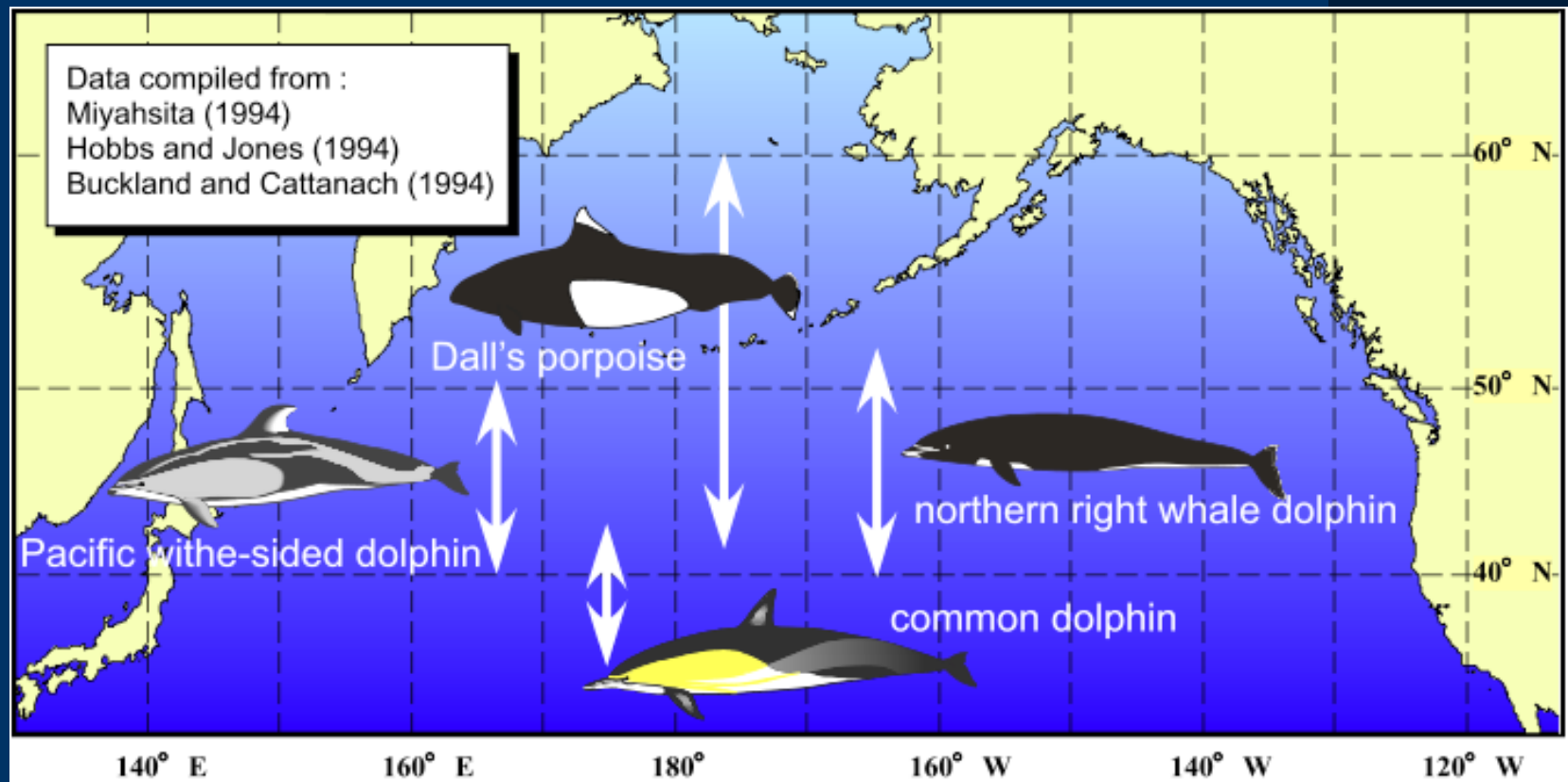


# Aim of this presentation

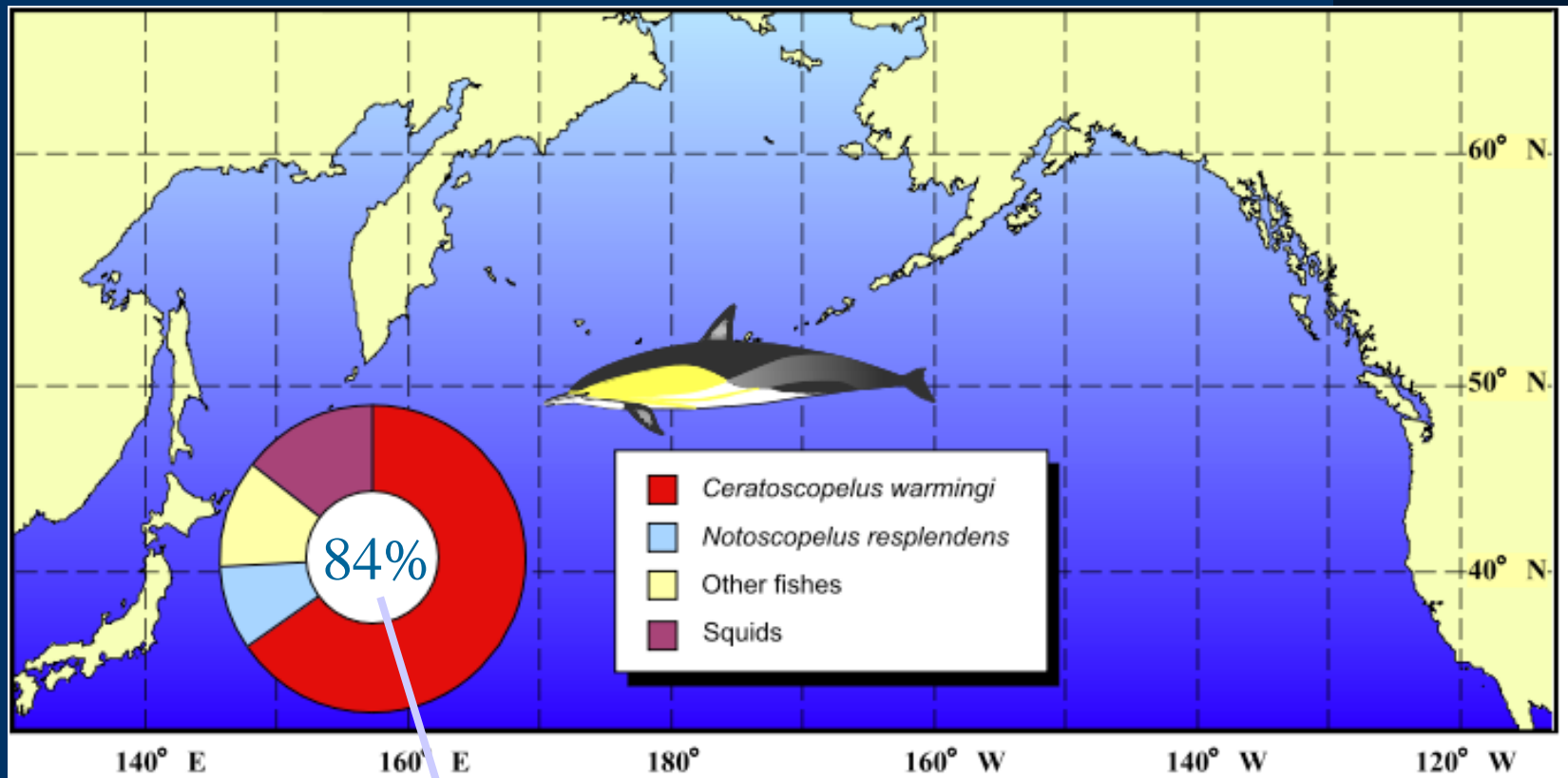
- On main species of dolphins in the PICES area in conjunction with temporal and spatial variation;
  - ✓ To show general composition of prey,
  - ✓ To compare prey among species,
  - ✓ To clarify pattern of prey variation,
  - ✓ To know what is needed information



# Northern North Pacific dolphins



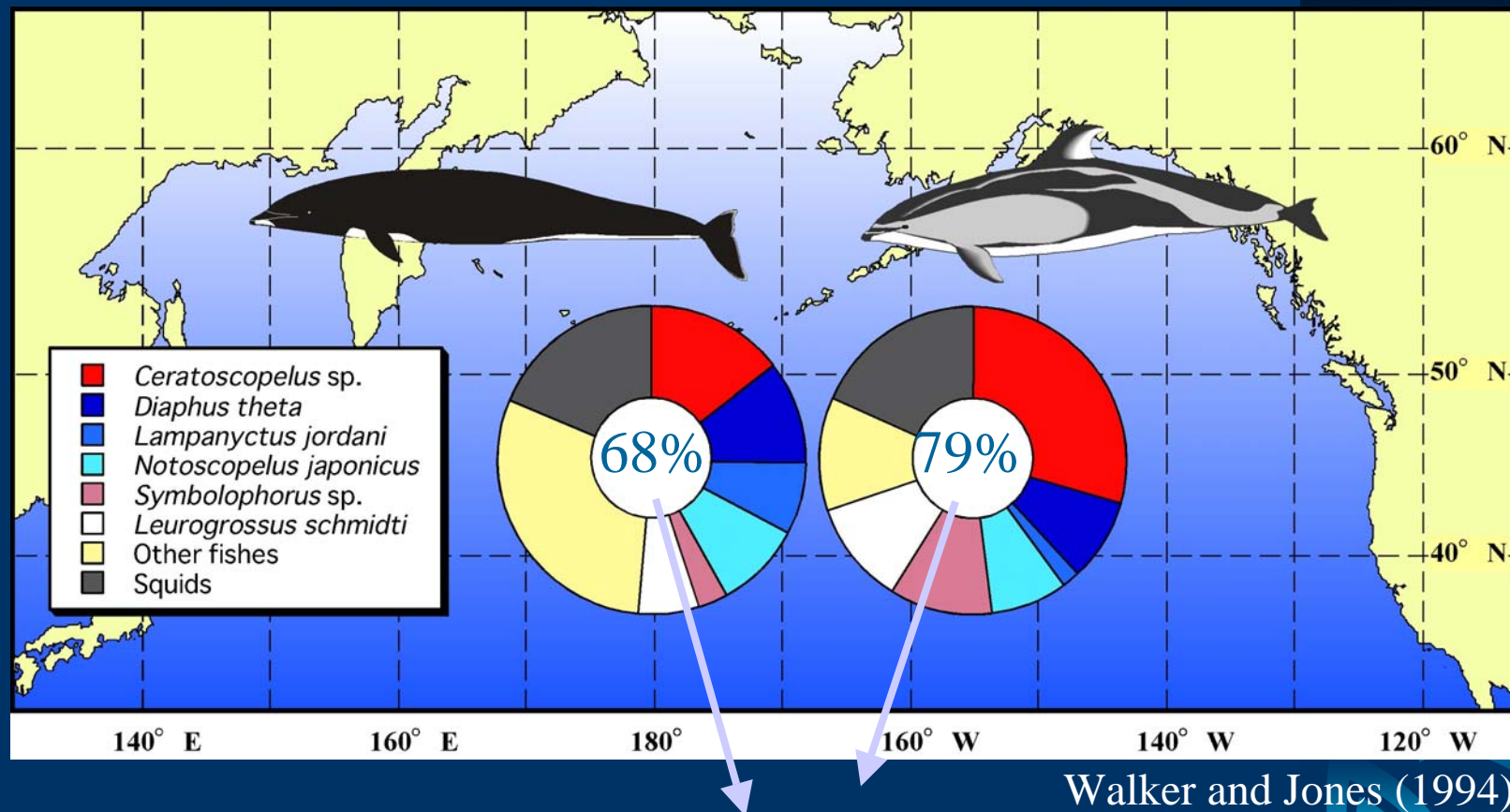
# Prey of short-beaked common dolphin



Ohizumi *et al.* (1998)

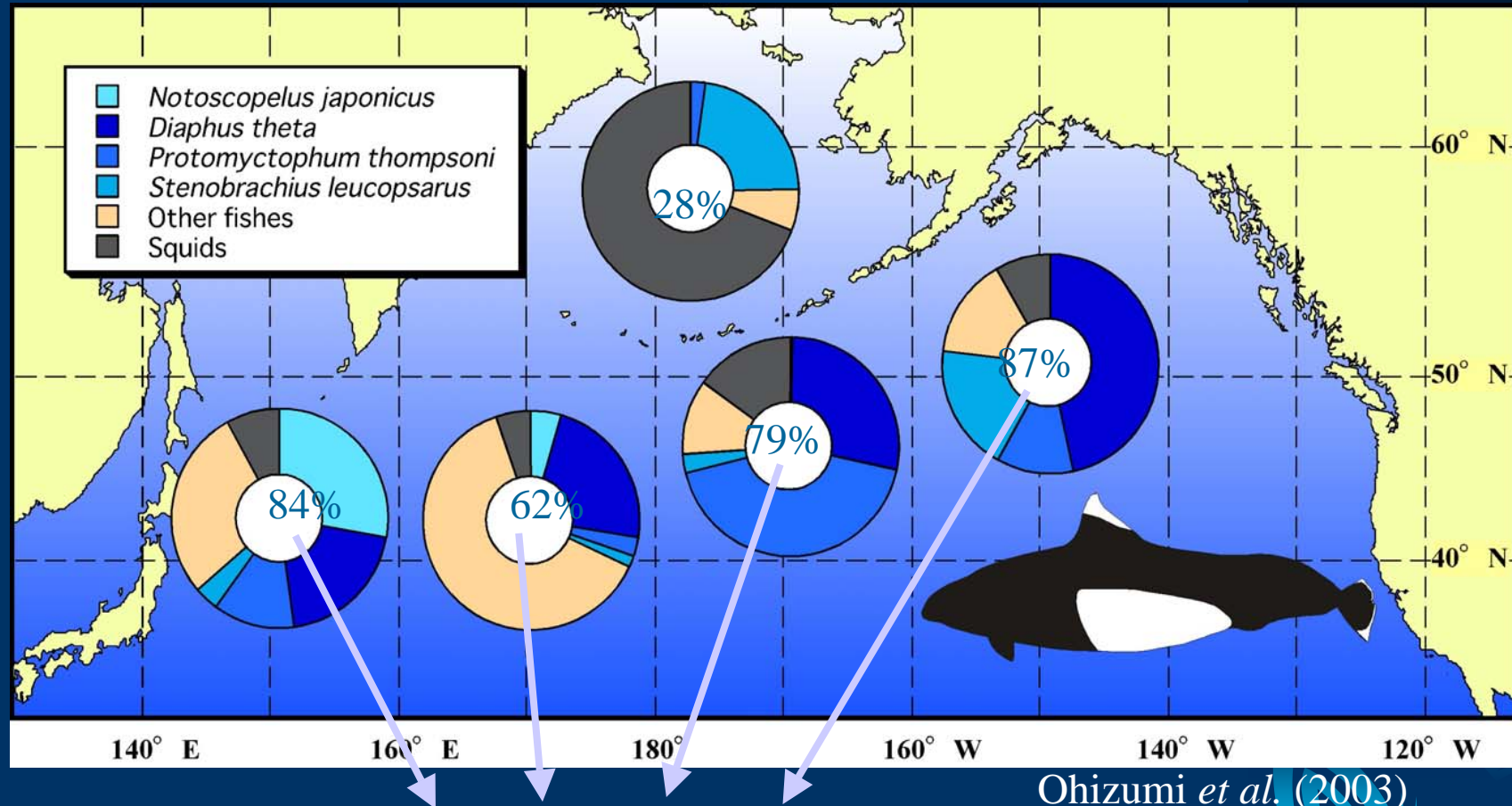
Most of the prey is Myctophid fish

# Prey of Pacific white-sided & northern right whale dolphins



Most of the prey is Myctophid fish

# Prey of Dall's porpoise: Geographic variation among pelagic waters



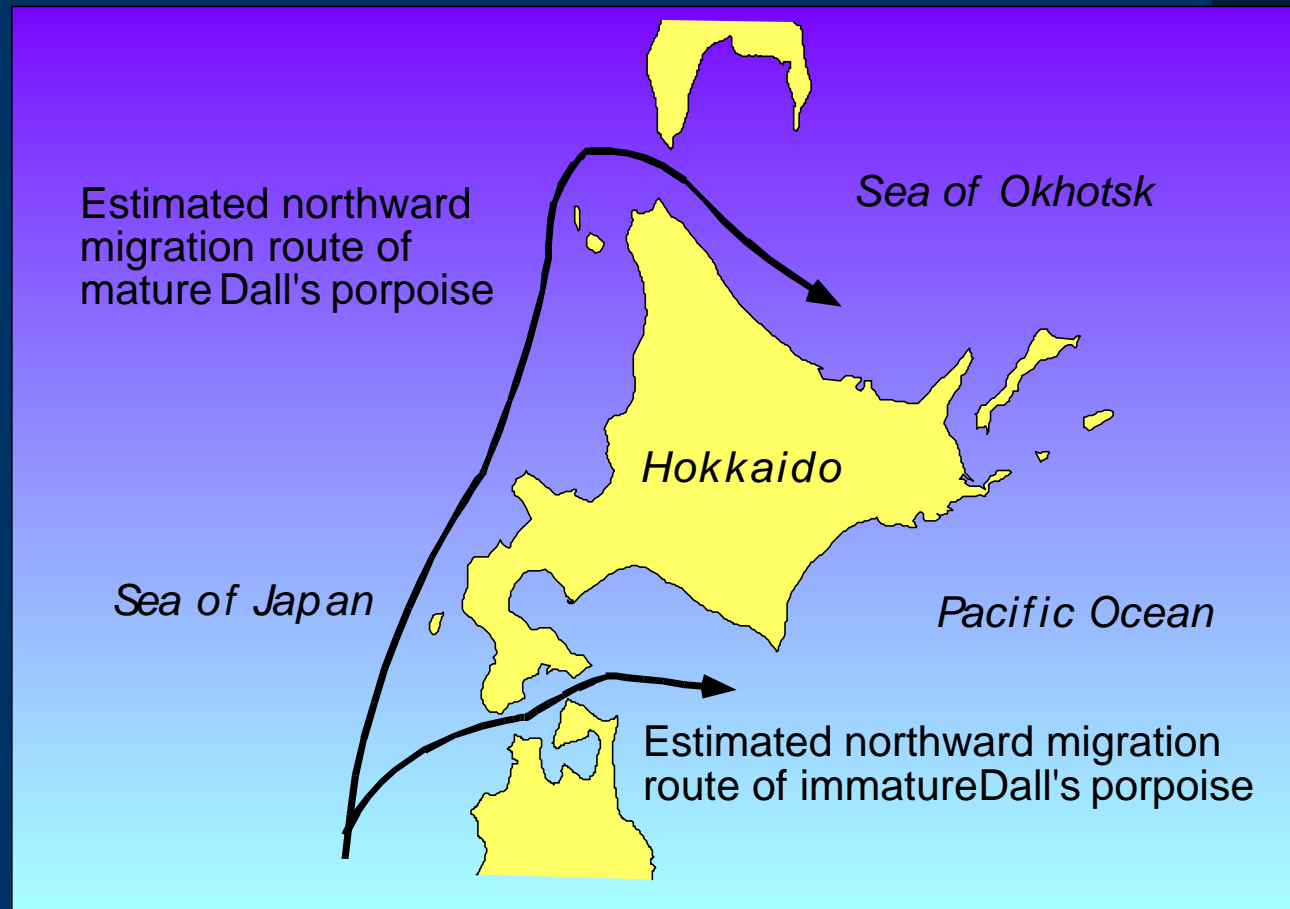
Most of the prey is Myctophid fish

# Dall's porpoise

- 1,200,000 animals in the North Pacific.
- 430,000 animals around Japan.
- Most abundant porpoise in the PICES area.
- One of the most important energy and nutrient pathway from the middle to higher trophic level (Ohizumi *et al.* 2003).

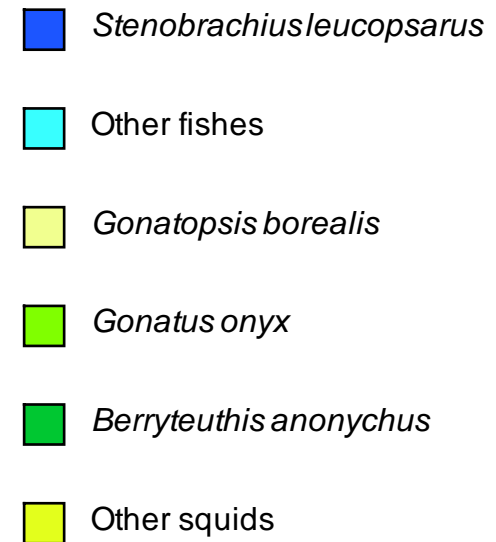
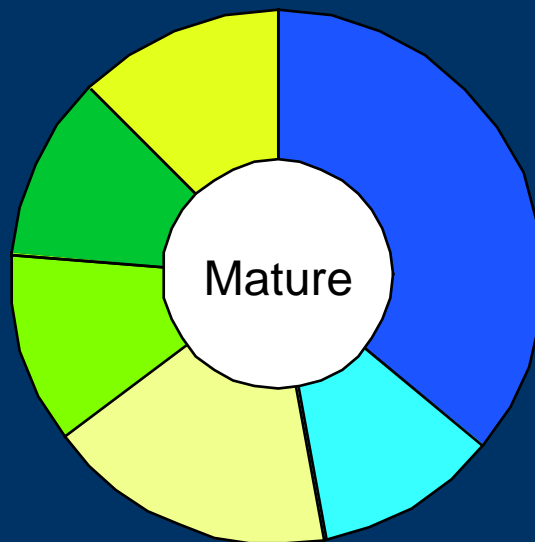
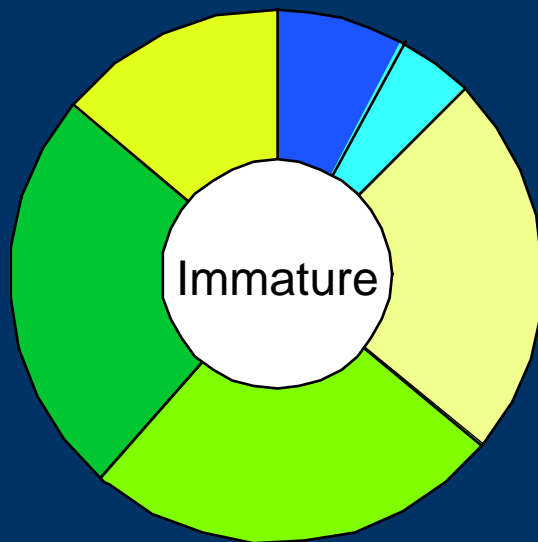


# Prey of Dall's porpoise: Off the coast of Hokkaido





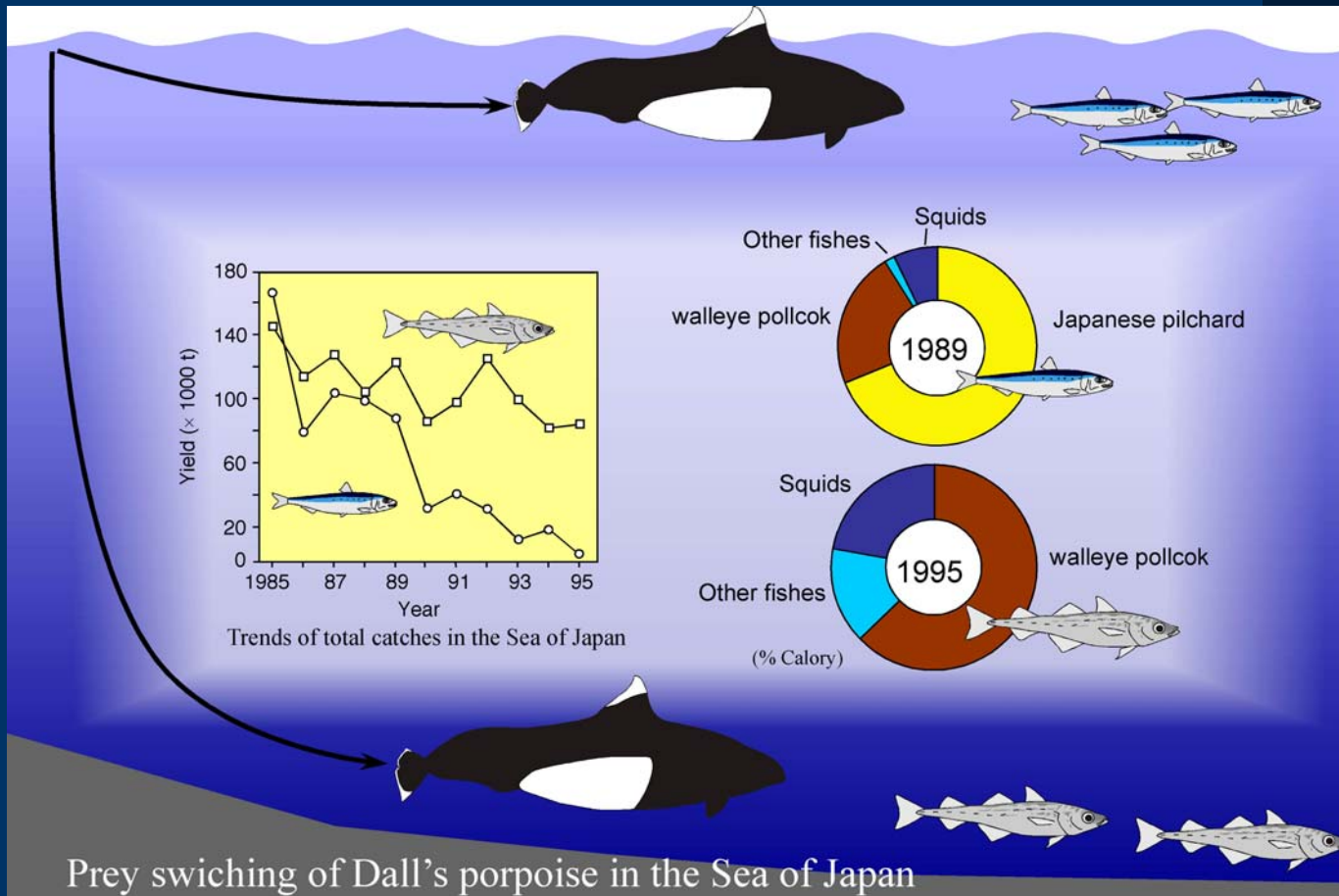
# Prey shift by growth stage of Dall'porpoise in the Bering Sea



# Geographic Variation of Prey

	Western	Middle	Eastern	Bering
Common dolphin	Myctophid <i>Ceratoscopelus</i> <i>Notoscopelus</i>			
Pacific white-sided dolphin		Myctophid <i>Ceratoscopelus</i> <i>Diaphus</i>		
Northern right whale dolphin		Myctophid <i>Ceratoscopelus</i> <i>Diaphus</i>		
Dall porpoise	Myctophid <i>Notoscopelus</i> <i>Diaphus</i>	Myctophid <i>Diaphus</i> <i>Protomyctophum</i>	Myctophid <i>Diaphus</i> <i>Protomyctophum</i> <i>Stenobrachius</i>	Squids <i>Gonatid</i>

# Prey switching with population decline of pilchard



# Conclusion

- Most of the prey items in the pelagic area is Myctophid fish for all dolphins.
- Prey variation depends on geographic and temporal prey availability.
- Prey shifts by growth stage in some dolphins, but needed to be studied more.
- Prey data is very limited for all species excepting Dall's porpoise.

