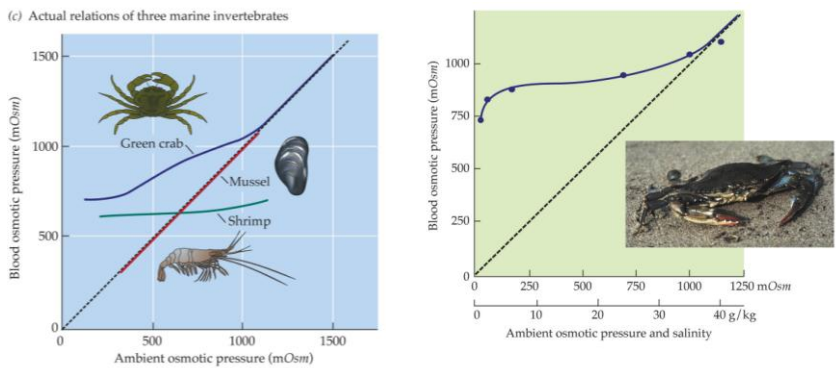
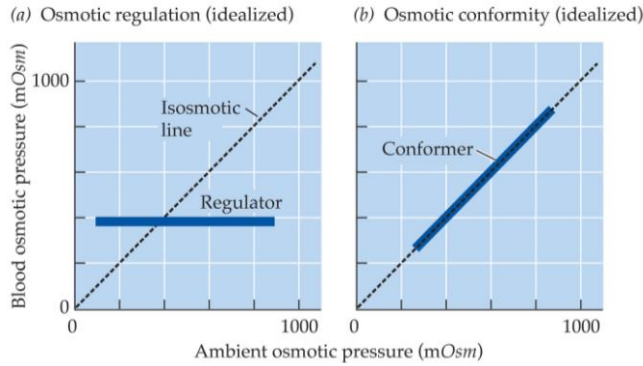


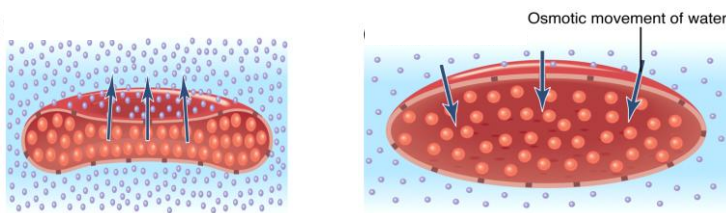
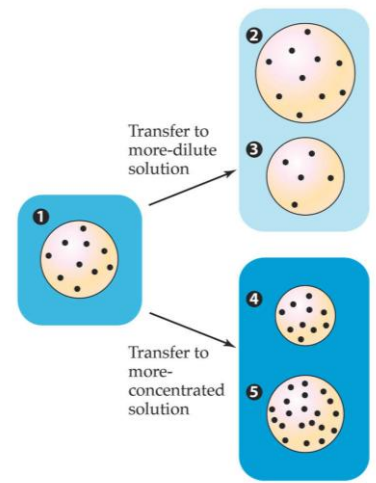
Lecture 15 handouts - FW vs. SW osmoregulators



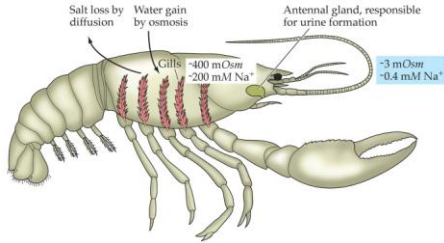
Extracellular Osmolarity	Habitat	mOsm
Freshwater		<50
Seawater		1000
Mytilus (mussel)	SW	1120
Nephtys (worm)	SW	1063
Eptatretus (hagfish)	SW	1002
Paralichthys (flounder)	SW	337
Anodonta (clam)	FW	44
Lumbricus (earthworm)	FW	299
Lamptera (lamprey)	FW	248
Carassius (goldfish)	FW	293
Rana (frog)	FW	290



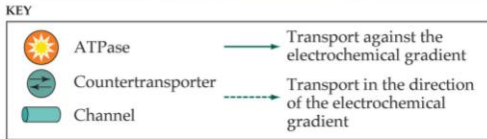
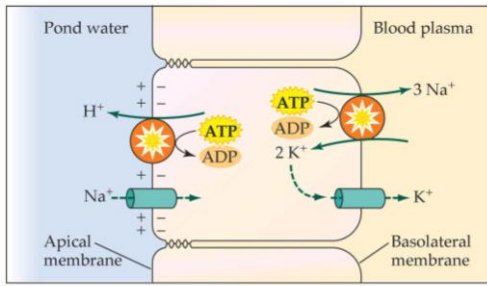
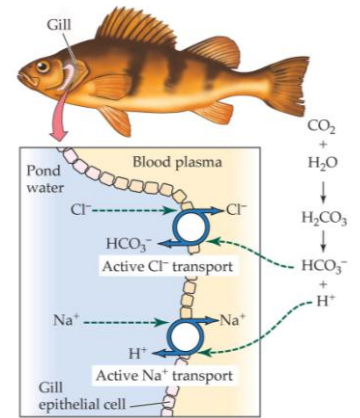
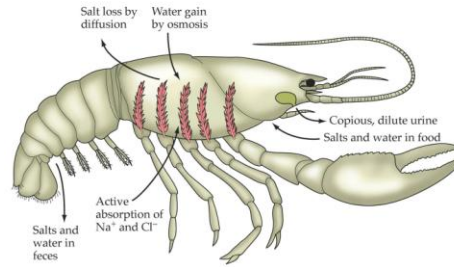
Extracellular Osmolarity	Habitat	mOsm	[Na ⁺] mM	[K ⁺] mM	[Cl ⁻] mM
<i>Freshwater</i>		<50	0.35	0.08	0.23
<i>Seawater</i>		1000	460	10	540
Mytilus (mussel)	SW	1120			
Aplysia (sea slug)	SW		492	10	543
Nephtys (marine worm)	SW	1063			
Eptatretus (hagfish)	SW	1002	554	7	532
Paralichthys (flounder)	SW	337	180	4	160
Latimeria (coelacanth)	SW		181	51	199
Anodonta (clam)	FW	44	16	0.5	12
Lamptera (lamprey)	FW	248	120	3	96
Carassius (goldfish)	FW	293	142	2	107
Rana (frog)	FW	290	125	9	98
Lumbricus (earthworm)	Ter		76	4	43
Lab rat	Ter		145	6	116



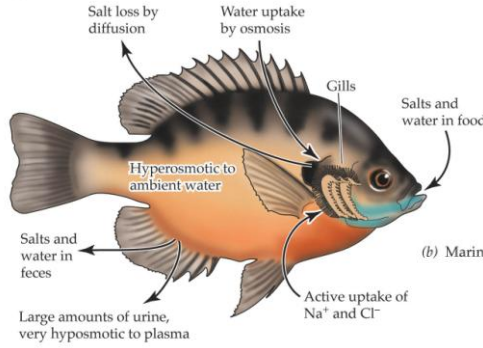
(a) Problems of passive water and salt exchange faced by freshwater animals



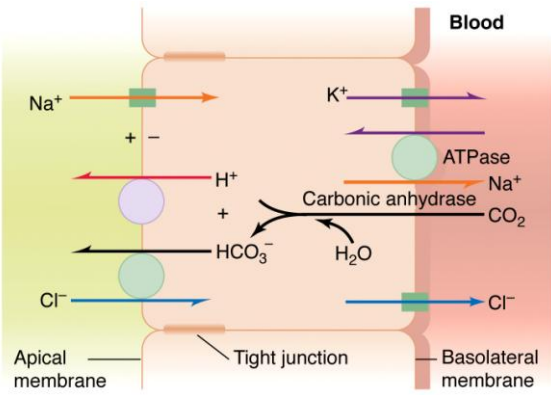
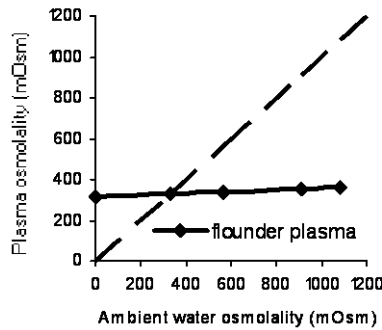
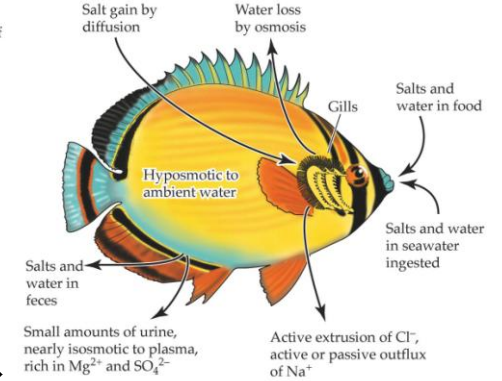
(b) Summary of all water and salt exchanges



(a) Freshwater teleost



(b) Marine teleost



Sampaio and Bianchini (2002) J.Exp.Mar.Biol.Ecol.

