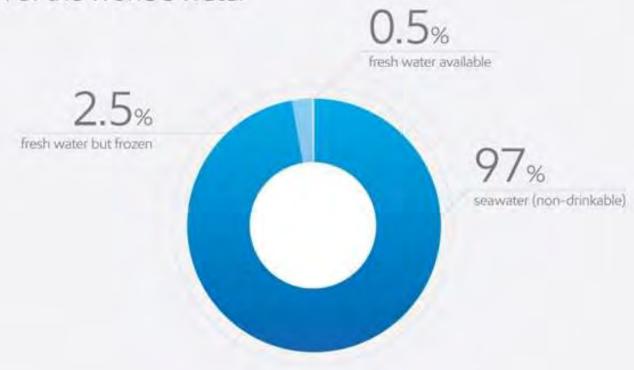
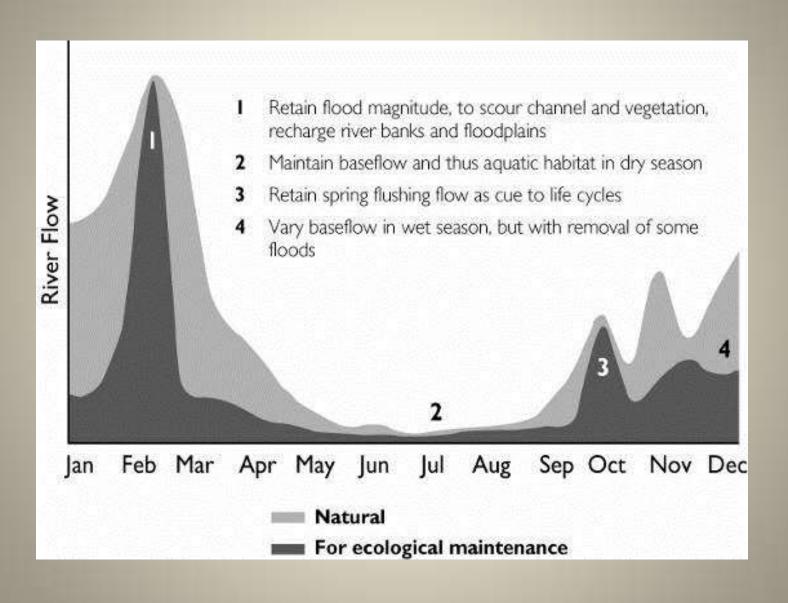
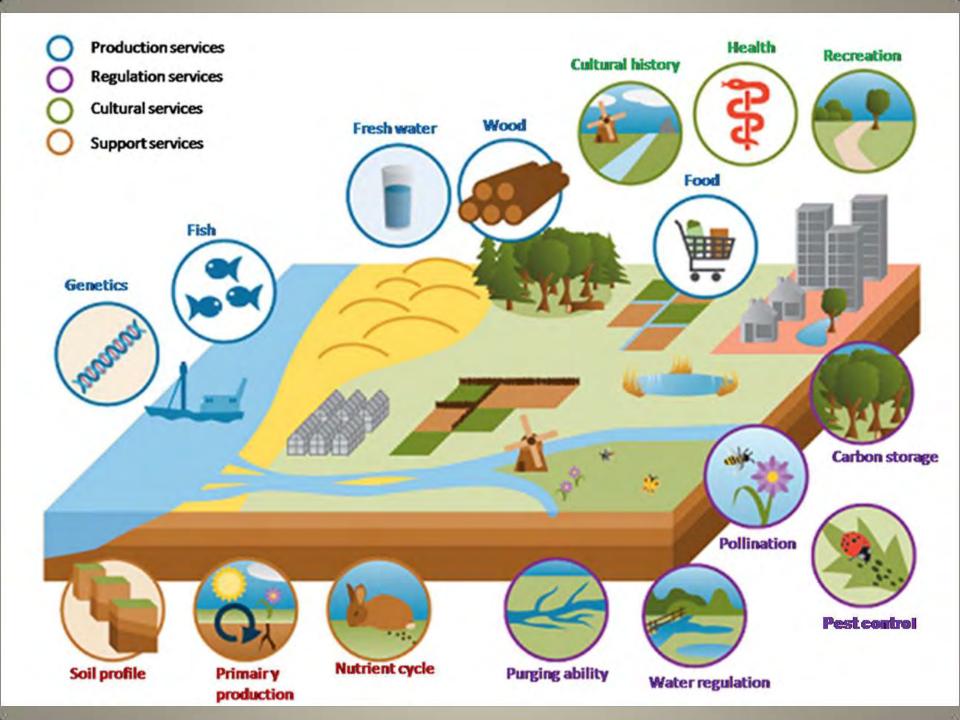


## Distribution of the world's water

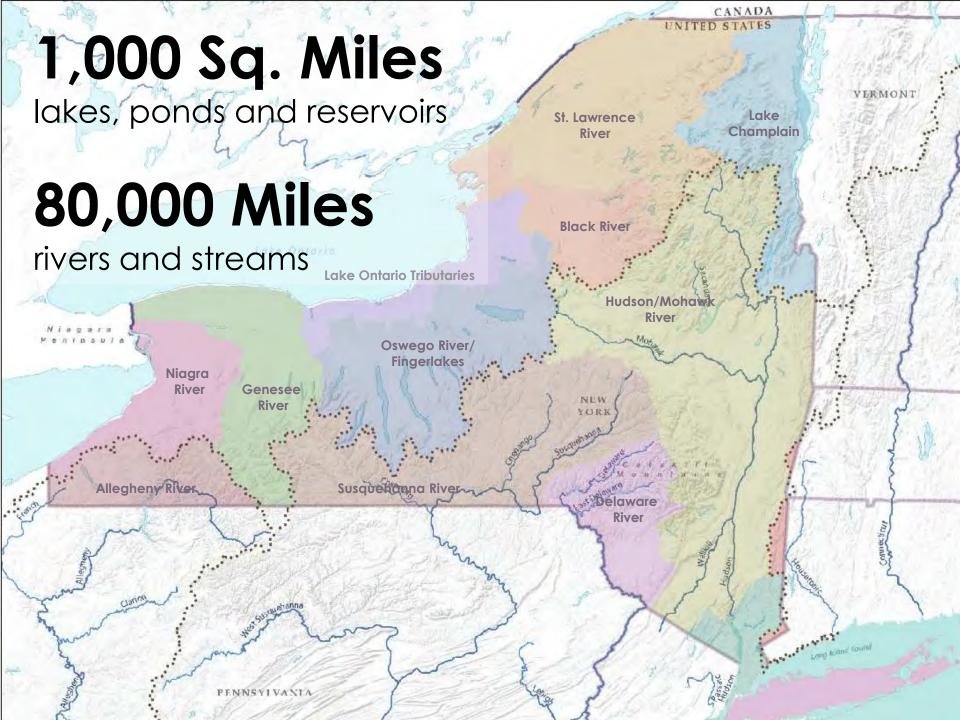


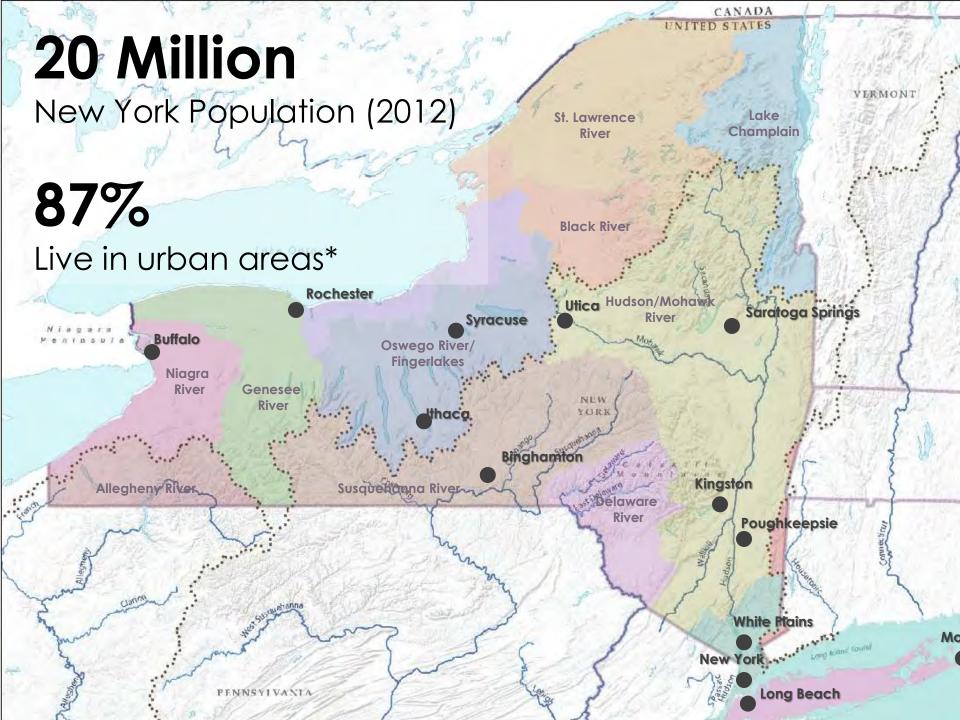
Source: WBCSD, 2006



























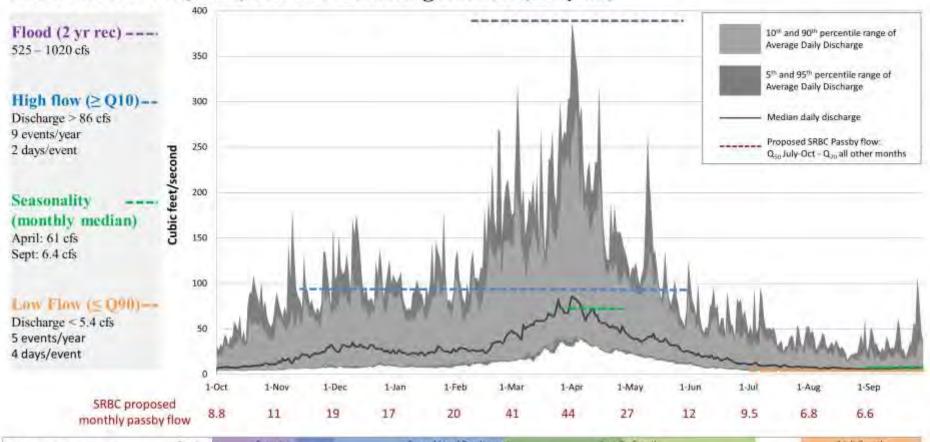








## Headwater/Creek, cool, low to moderate gradient: (36 sq. mi.)



Cold headwater fish	Trout	Spawning Egg and Larval Development		Juvenile Growth			Adult Growth		
Loid nedawater jish	Sculpin		Juvenile Survival	Spawning					
Riffle obligate fish	Longnose dace					Spawning	Lerval Development		
	Fantail darter	Juvenile Growth		Spawnin	g Lacral Development		Juve	ille Growth	
Riffle associate fish	White sucker			Spawning 6	og haton/Larval Drift		Juvenile/Adult Growth		
	Brook Lamprey			Spawning					
Nest builders fish	Creek chub				Nesting		Juvenile Gro	owth	
	Rock Bass				Nesting		Juvenile Growth		
Anadromous sport fish	Fall run	Adults in-migrate and spawn	Egg Incubation/Overwintering Juveniles	Smolt out-migrate	Fry Emergence	Fry Emergence Jo		ovenile Growth	
	Spring run	Adults in-migrate (SeptDec.)	Peak spawining (MatApr.)	Smolts out-migrate	Fry Emergence		Juvenile Growth		
Riverine mussels			Brooding		Glochidia release		Spi	iwning	
Facultative riverine mussels				Spawi	Account	Brooding	Gloch	idia release	
						Brooding			
Lentic mussels			Brooding		Glochidla release		Spawning	Brooding	

Fifty- four (54) FLOW-ECOLOGY HYPOTHESES describe who (species or guild) is affected by what (flow component), when (month or season), where (habitat), and how (hypothesized ecological response).

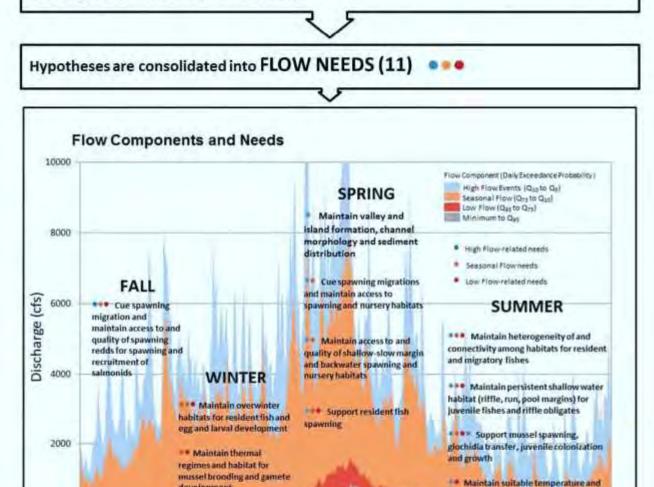


Figure 5.2. Conceptual model of seasonal flow needs for fish and mussels in Great Lakes rivers and streams based on flow ecology hypotheses generated during by this project's Technical Advisory Team.

Month

water quality

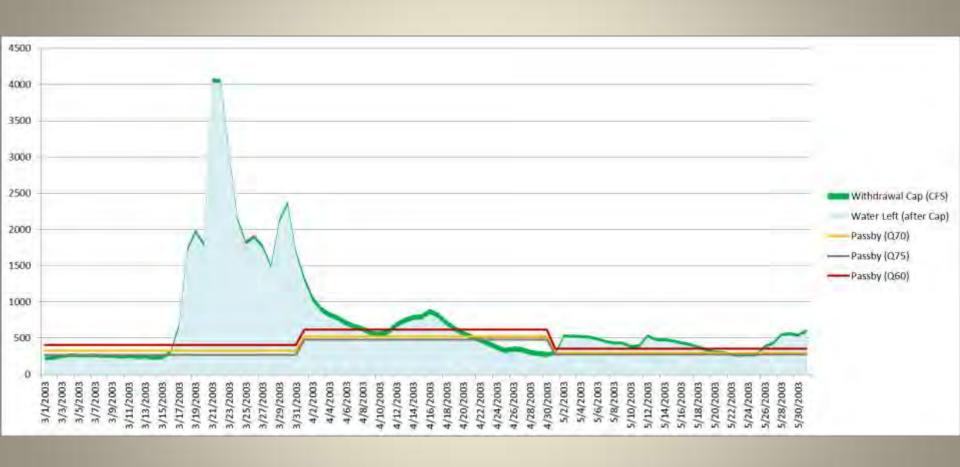
development

0



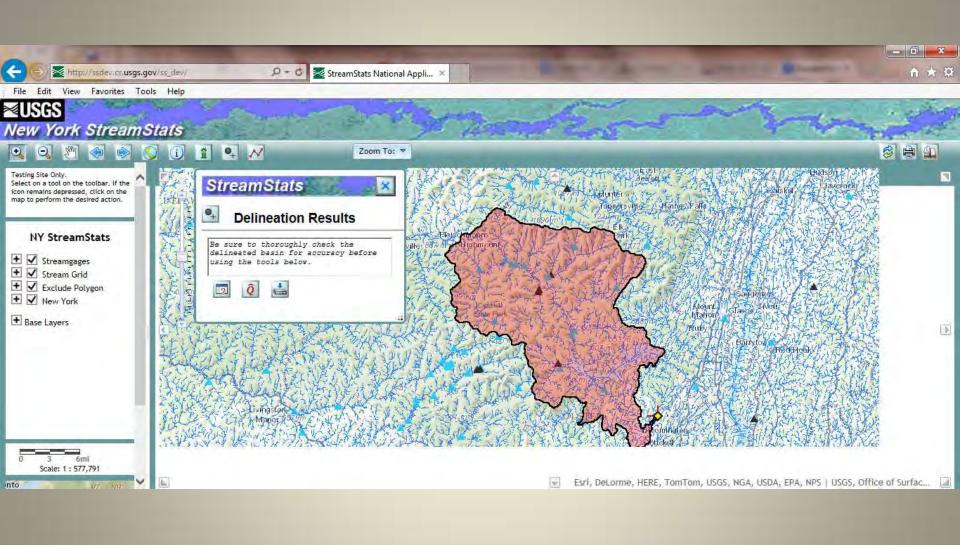
ECODEFICIT AND EC	COSURPLU	IS CALCUL	.ATOR						
	% Change From								
	Unaltered Condition				Compute ecodeficits and ecosurpluses				
	< 10%								
	O 10 to 20%				and ecosur	oluses			
	20 to 50%								
		> 50%							
Ranges	0.10	0.5	0.50	0.75	0.70	0.8	0.80	0.99	
	Q10:Q50		Q50:Q75		Q70:Q80		Q80:Q99		
	EcoDef		EcoDef		EcoDef		EcoDef	EcoSur	
Oct	0.03		<u>0</u> 0.11		<u>0</u> 0.17		0.28	0.00	
Nov	0.02		0.04		0.06		0.13	0.00	
Dec	0.02		0.04		0.05		0.07	0.00	
Jan	0.02		0.05		0.06		0.09	0.00	
Feb	0.02		0.05		0.06		0.09	0.00	
Mar	0.01		0.03		0.04		0.06	0.00	
Apr	0.01		0.02		0.02		0.03	0.00	
May	0.02		0.03		0.04		0.05	0.00	
Jun	0.03		0.06		0.08		0.11	0.00	
Jul	0.06		O.11		O.14		0.21	0.00	
Aug	0.08		<u>0</u> 0.16		0.21		0.30	0.00	
Sep	0.08		<u>0</u> 0.19		0.24		0.34	0.00	

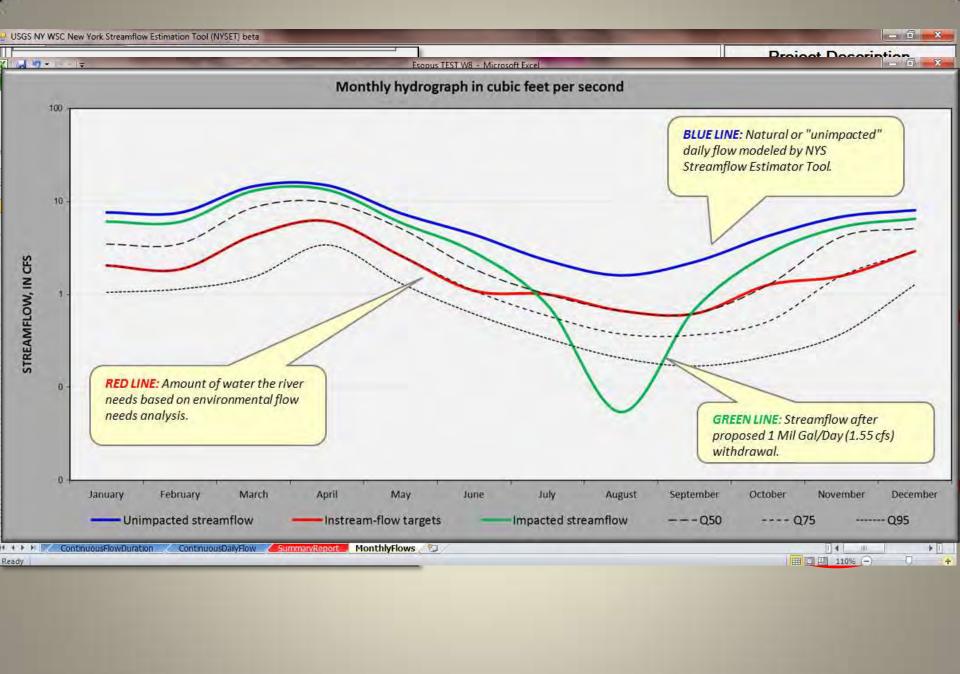
## **ESOPUS CREEK EXAMPLE**



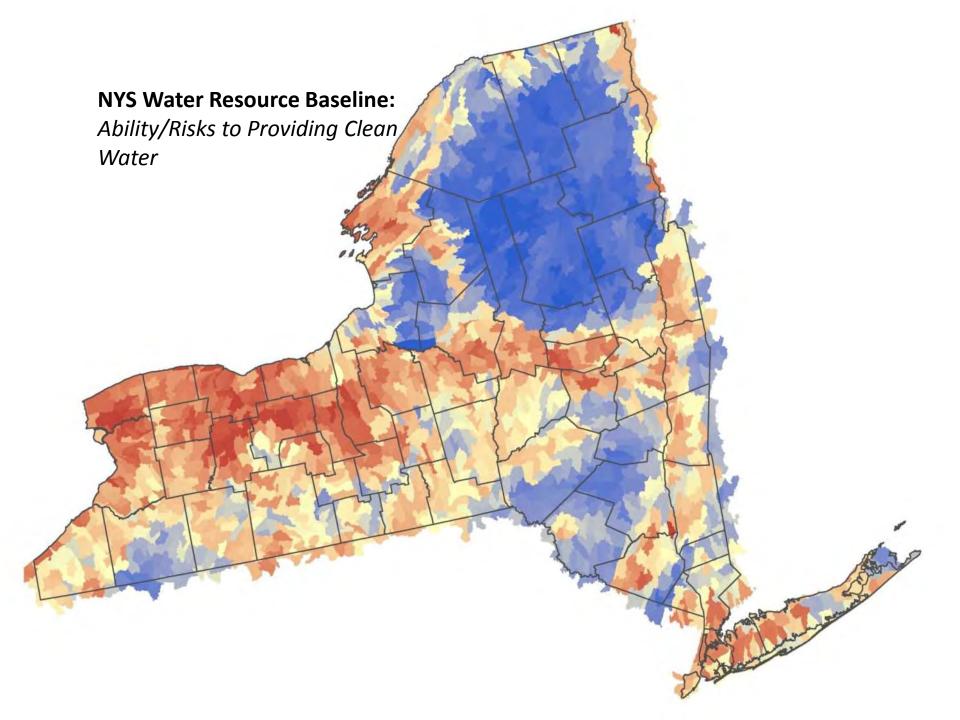




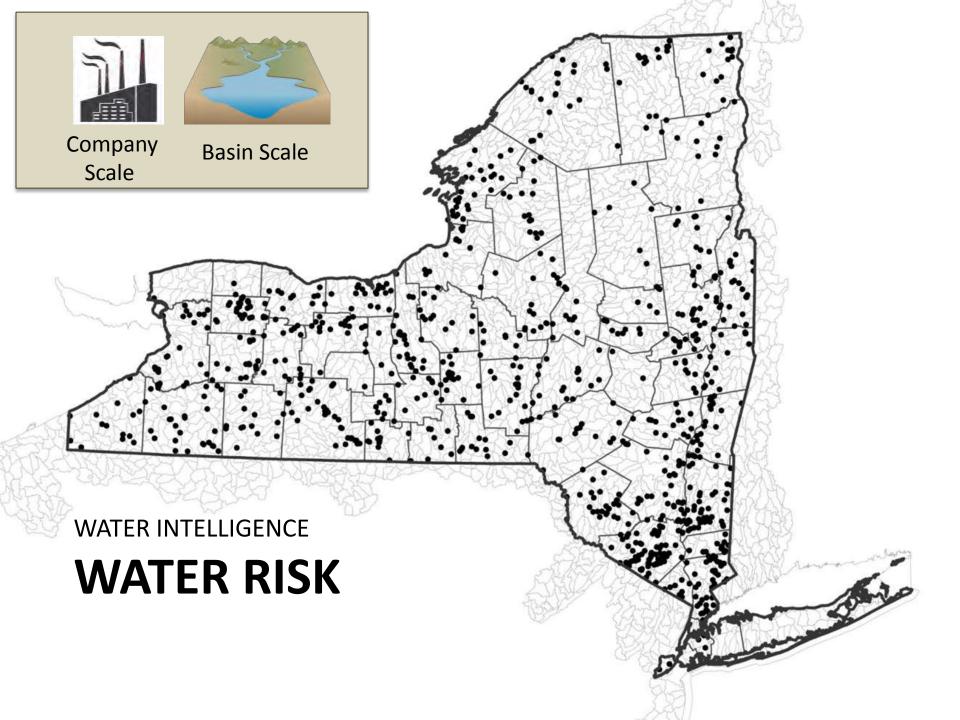








## Physical Water Risk | Pollution average risk of NY's major water withdrawers summarized to HUC10 watersheds Water pollution Nitrogen loading Phosparous loading Pesticide loading Soli salination Drgenic loading Sediment loading Mercury loading Potential acidification No facilities / No data No or very limited risk Limited risk Some risk High risk Thermel alteration Very high risk The Nature Conservancy US-Vane-2015 | Source: HIV DEC, USSS HHD) WWF Water Rich Bilter





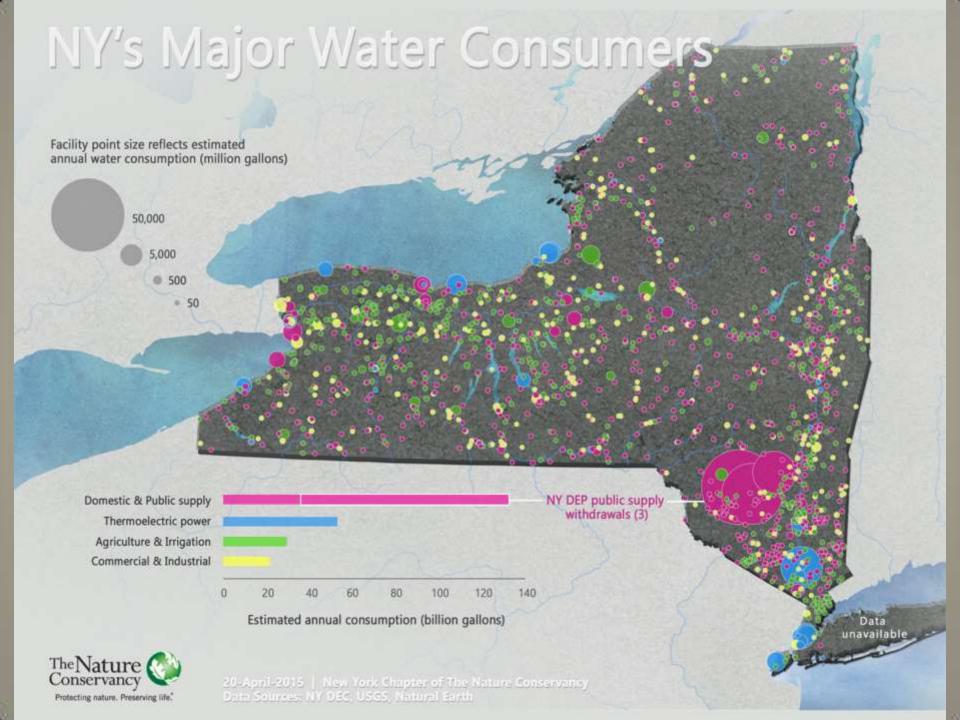


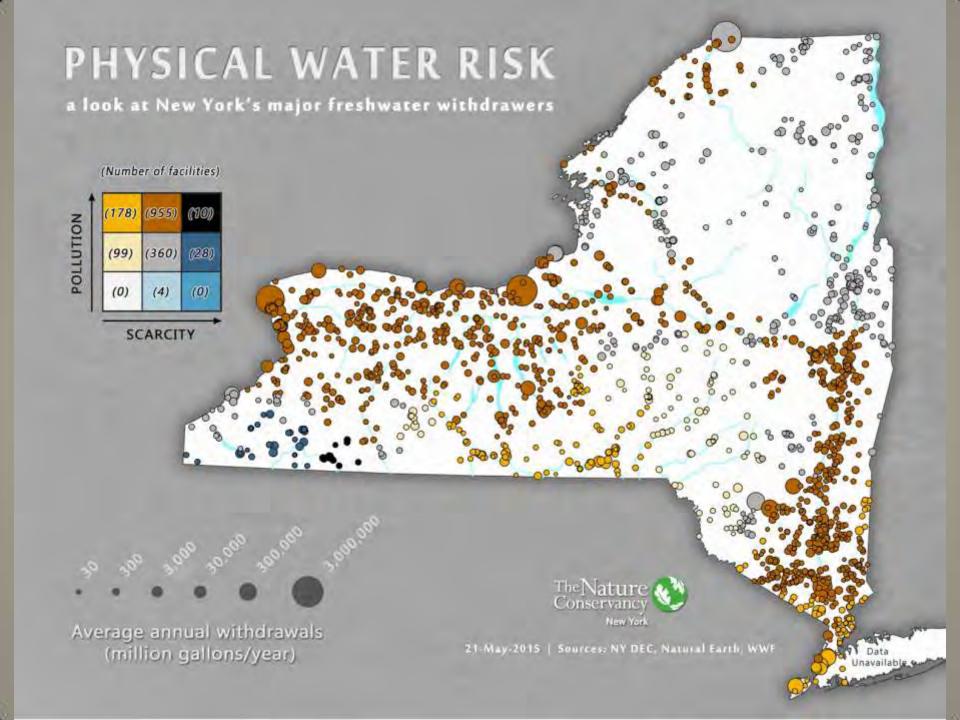


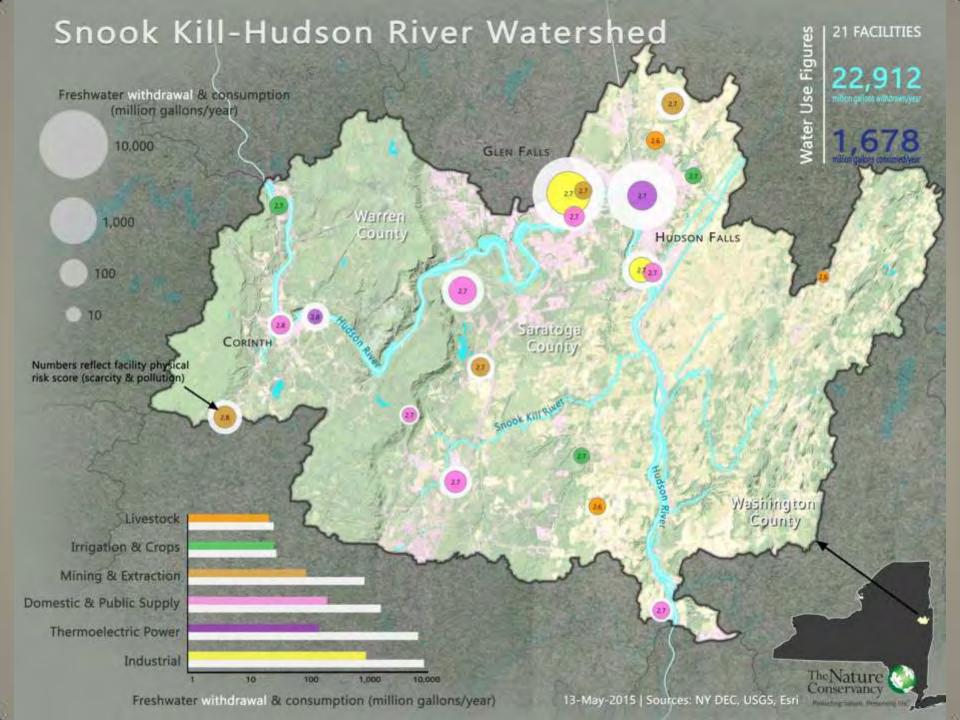


















University at Buffalo The State University of New York





