New Jersey Water Withdrawals, Uses, Transfers, and Discharges by HUC11, 1990 to 1999

Appendix 18: HUC11 Tables, Figures and Maps WMA 18 - Lower Delaware







NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION



	Lower Delaware							18				
HUC11:		Po	mpeston	Creek / S	Swede Rur	ı		02	.0402020)90		
											<u> </u>	
Table 1. Freshwater	Withdrawa 1990	ls in the HUC 1991	1992	ns of gallo 1993	o ns) 1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination
surface water: ² Delaware River	·lo	0	0	0	0	0	3 470	6 907	7 465	6 930	2 477	Fresh Water of Fresh Water
other	8	15	13	17	17	18	15	35	18	27	18	
round-water: 3	1 8	15	13	17	17	18	3,485	6,942	7,483	6,957	2,496	
confined	31	44 1 112	36 706	20	19 885	26 834	10 242	93 199	110 343	89 528	48 696	≅
sum	1,177	1,156	741	984	903	860	252	292	453	617	744	-
total withdrawals:	1,184	1,171	754	1,001	920	878	3,737	7,235	7,936	7,575	3,239	
Table 2. Freshwater	Imports To &	Exports Fr	om the HU	IC11 (millio	ons of gallo	ns)						
imports ¹¹	881	948	977	934	1,009	1,040	791	905	954	827	927	ground surface imports consump- nonconsump- exports vater
net	728 153	706 242	<u>447</u> 531	610 324	562 446	530 511	2,356 (1,566)	4,516 (3,611)	4,962 (4,008)	4,740	2,016 (1,089)	_ (evaporated) evaporated)
Table 3. Nonconsum	ptive ⁴ & Co	nsumptive ⁵	Water Use	€ in the H	UC11, by Us	e Type (mil	llions of g	allons) 1997	1908	1900	average	
otable purveyors	1330	1331	1332	1000	1334	1333	1000	1331	1000	1333	average	- Figure 3. Consumptive & Nonconsumptive Use
nonconsumptive consumptive	e 1,149 e 150	1,195 158	1,093 140	1,129 155	1,180 151	1,185 159	1,904 238	3,104 391	3,339 461	3,146 400	1,842 240	2,500
omestic wells		0	0	0	0	0	0	0	•	0	0	2.000
consumptive	0	0	0	0	0	0	0	0	0	0	0	X ear
ndustrial & commercial & n nonconsumptive	nining 17	19	17	2	1	3	1	61	52	47	22	è 1,500 +
consumptive	e 2 ral irrigation	2	2	0	0	0	0	7	6	5	2	
nonconsumptive	2	4	3	4	3	4	3	6	7	6	4	
consumptive ower generation	18	33	29	34	31	36	24	55	63	58	38	500
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0	
SUM:	. 0	0	0	0	0	0	0	0	0	0	0	
nonconsumptive consumptive	e 1,168 e 169	1,218 193	1,113 171	1,135 190	1,184 182	1,193 196	1,908 263	3,171 452	3,398 530	3,199 463	1,869 281	purveyors wells mining & irrigation generation
PERCENTAGES:	87.3%	86.3%	86.7%	85.7%	86.7%	85.9%	87.9%	87.5%	86.5%	87 4%	86.9%	nonconsumptive consumptive
consumptive	12.7%	13.7%	13.3%	14.3%	13.3%	14.1%	12.1%	12.5%	13.5%	12.6%	13.1%	
				Consump	tive ⁵ (millio	ns of gallo	ns) ∣ ⊧	all	Vearl	ν Ανα		Figure 4. Average Seasonal Consumptive Water Loss, by Use
Table 4. Average Sea	asonal ⁷ Use	- Nonconsu	mptive* &	ring		inner	1.0		1 Gan			
Table 4. Average Sea	asonal ⁷ Use Wi Noncon-	- Nonconsu nter Consump-	Noncon-	ring Consump-	Noncon-	Consump-	Noncon-	Consump-	Noncon-	Consump-	-	300
Table 4. Average Sea Use Group potable purveyors	Asonal ⁷ Use Wi Noncon- sumptive 434	- Nonconsu nter Consump- tive 0	Noncon- sumptive 458	oring Consump- tive 32	Noncon- sumptive 480	Consump- tive 167	Noncon- sumptive 470	Consump- tive 41	Noncon- sumptive 1,842	Consump- tive 240	- -	300 5 250 200 200 200 200 200 200 200
Table 4. Average Sea Use Group potable purveyors domestic wells industrial & commercial &	asonal ⁷ Use Wi Noncon- sumptive 434 0	- Nonconsu nter Consump- tive 0 0	Sp Noncon- sumptive 458 0	oring Consump- tive 32 0	Noncon- sumptive 480 0	Consump- tive 167 0	Noncon- sumptive 470 0	Consump- tive 41 0	Noncon- sumptive 1,842 0	Consump- tive 240 0	- - -	300 250 200 150 150 300 300 300 300 300 300 300 3
Table 4. Average Sea Use Group potable purveyors domestic wells ndustrial & commercial & mining	Asonal ⁷ Use Wi Noncon- sumptive 434 0 3	- Nonconsu nter Consump- tive 0 0 0	Sp Noncon- sumptive 458 0 6	oring Consump- tive 32 0 1	Noncon- sumptive 480 0 9	Consump- tive 167 0 1	Noncon- sumptive 470 0 4	Consump- tive 41 0 0	Noncon- sumptive 1,842 0 22	Consump- tive 240 0 2	- - -	300 g 250 200 g 150 g 100 g 100 g 100
Table 4. Average Sea Use Group potable purveyors domestic wells industrial & commercial & mining agricultural & non- agricultural irrig.	Asonal ⁷ Use Wi Noncon- sumptive 434 0 3 0	- Nonconsu nter Consump- tive 0 0 0 0	mptive 8 Sp Noncon-sumptive 458 0 6 1	oring Consump- tive 32 0 1 5	Noncon- sumptive 480 0 9 3	Consump- tive 167 0 1 26	Noncon- sumptive 470 0 4 1	Consump- tive 41 0 0 6	Noncon- sumptive 1,842 0 22 4	Consumptive 240 0 2 38	- - - -	300 8 250 200 5 200 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5
Table 4. Average Sec Use Group potable purveyors domestic wells industrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:	asonal ⁷ Use Wi Noncon- sumptive 434 0 3 3 0 0 437	- Nonconsu nter Consump- tive 0 0 0 1 0 1	mptive 8 Sp Noncon- sumptive 458 0 6 1 0 465 465	oring Consump- tive 32 0 1 5 0 38	Noncon- sumptive 480 0 9 3 0 492	Consump- tive 167 0 1 26 0 194	Noncon- sumptive 470 0 4 1 0 475	Consump- tive 41 0 0 6 0 47	Noncon- sumptive 1,842 0 22 4 0 1.869	Consump tive 240 0 2 38 0 281	- - - - -	300 200 200 50 100 50 0 50 0 50 0 50 0 50 100 10
Table 4. Average Sea Use Group potable purveyors domestic wells ndustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:	asonal ⁷ Use Wi Noncon- sumptive 434 0 3 3 0 0 437	- Nonconsu nter Consump- tive 0 0 0 1 0 1 1	mptive 8 Sp Noncon- sumptive 458 0 6 1 0 465 465	bring Consump- tive 32 0 1 5 0 38	Sum Noncon- sumptive 480 0 9 3 0 492	Consump- tive 167 0 1 26 0 194	Noncon- sumptive 470 0 4 1 0 475	Consump- tive 41 0 0 6 0 47	Noncon- sumptive 1,842 0 22 4 0 1,869	Consump tive 240 0 2 38 0 281	- - - -	300 100 100 100 100 100 100 100
Table 4. Average Sea Use Group otable purveyors domestic wells ndustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:	Asonal ⁷ Use Wi Noncon- sumptive 434 0 3 0 0 437	- Nonconsu nter Consump- tive 0 0 1 1 1	mptive 8 Sp Noncon-sumptive 458 0 6 1 0 465	bring Consump- tive 32 0 1 5 0 38	Noncon- sumptive 480 0 9 3 0 492	Consump- tive 167 0 1 26 0 194	Noncon- sumptive 470 0 4 1 0 475	Consump- tive 41 0 0 6 0 47	Noncon- sumptive 1,842 0 22 4 0 1,869	Consump tive 240 0 2 38 0 281	- - - -	300 100 100 100 100 100 100 100
Table 4. Average Sea Use Group potable purveyors domestic wells ndustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:	asonal ⁷ Use Wi Noncon- sumptive 434 0 3 3 0 0 437	- Nonconsu nter Consump- tive 0 0 1 0 1 1	mptive 8 Sp Sp Noncon-sumptive 458 0 6 1 0 465 465	oring Consump- tive 32 0 1 1 5 0 38	Sum Noncon- sumptive 480 0 9 3 0 492	Consump- tive 167 0 1 26 0 194	Noncon- sumptive 470 0 4 1 1 0 475	Consump- tive 41 0 0 6 0 47	Noncon- sumptive 1,842 0 22 4 0 1,869	Consump tive 240 0 2 38 0 281	- - - -	300 200 500 500 500 500 500 500 5
Table 4. Average Sea Use Group potable purveyors domestic wells ndustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:	asonal ⁷ Use Wi Noncon- sumptive 434 0 3 0 0 437	- Nonconsu nter Consump- tive 0 0 0 1 1 1	mptive 8 Sp Noncon- sumptive 458 0 6 1 1 465	oring Consump- tive 32 0 1 5 0 38	Sum Noncon- sumptive 480 0 9 3 0 492	Consump- tive 167 0 1 26 0 194	Noncon- sumptive 470 0 4 1 0 475	Consump- tive 41 0 0 6 6 0 47	Noncon- sumptive 1,842 0 22 4 0 1,869	0 281	- - - -	300 200 200 50 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 0 50 0 0 150 0 0 150 0 0 0 0 0 0 0 0 0 0 0 0 0
Table 4. Average Sec Use Group potable purveyors domestic wells ndustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:	asonal ⁷ Use Wi Noncon- sumptive 434 0 3 0 0 437	- Nonconsu nter Consump- tive 0 0 1 0 1 1 ansfers [®] in 1001	mptive* 8 Sp Sp Noncon-sumptive 458 0 6 1 0 465 465	bring Consump- tive 32 0 1 5 0 38 1 (<i>millions</i> 1 1993	Sum Noncon- sumptive 480 0 9 3 0 492 of gallons) 1004	Consump- tive 167 0 1 26 0 194	Noncon- sumptive 470 0 4 1 0 475	Consump- tive 41 0 0 6 0 47 47	Noncon- sumptive 1,842 0 22 4 0 1,869	1000	- - - -	300 4 250 200 200 50 100 50 0 50 0 0 potable domestic industrial & agriculture power generation 8 irrigation Figure 5. Average Sewage Gen- Fig 6. Average Treated-Effluent
Table 4. Average Set Use Group potable purveyors domestic wells ndustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:	asonal ⁷ Use Wi Noncon- sumptive 434 0 3 3 0 0 0 437 Heration & Tr 1990 1,098	- Nonconsu nter Consump- tive 0 0 1 0 1 1 ansfers [®] in 1991 1,230	Imptive 8 Sp Sp Noncon-sumptive 458 0 6 1 0 465 465 the HUC111 1992 1,264 1	bring Consump- tive 32 0 1 5 0 38 1 (millions 1 1993 1,328	of gallons) 1994 1,370	Consump- tive 167 0 1 26 0 194 194	Noncon- sumptive 470 0 4 1 0 475	Consump- tive 41 0 0 6 0 47 47 1997 1,276	Noncon- sumptive 1,842 0 22 4 0 1,869 1,869	1999 1,231		300 300 400 100 100 100 100 100 100 1400 1400 1400
Table 4. Average Sei Use Group potable purveyors domestic wells ndustrial & commercial & agricultural & non- agricultural irrig. power generation SUM:	asonal ⁷ Use Wi Noncon- sumptive 434 0 0 3 0 0 437 437 437 437	- Nonconsu nter Consump- tive 0 0 1 1 0 1 1 ansfers ⁸ in 1991 1,230 200 741	Imptive 8 Sp Sp Noncon-sumptive 458 0 6 1 0 465 465 the HUC11 1992 1,264 216 746 746	bring Consump- tive 32 0 1 5 0 38 1 1 1993 1,328 223 796	3un Noncon- sumptive 480 0 9 3 0 492 of gallons) 1994 1,370 227 833	Consump- tive 167 0 1 26 0 194 194 194 1995 1,177 198 703	Noncon- sumptive 470 0 4 1 0 475 475 475 475 1996 1,420 211 909	Consump- tive 41 0 0 6 0 47 47 1997 1,276 1997 796	Noncon- sumptive 1,842 0 22 4 0 1,869 1,869 1,869 1,869	1999 1,231 1999 1,231 780	average 1,263 201 777	300 300 250 200 150 150 100 100 potable industrial & agriculture purveyors domestic industrial & mining agriculture power generation Figure 5. Average Sewage Generation & Transfers Fig 6. Average Treated-Effluent 1.400 1.200
Table 4. Average Sei Use Group potable purveyors domestic wells ndustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:	asonal ⁷ Use Wi Noncon- sumptive 434 0 3 3 0 0 437 437 437	- Nonconsu nter Consump- tive 0 0 1 1 0 1 1 0 1 1 ansfers [®] in 1991 1,230 200 741	Imptive 8 Sp Sp Noncon-sumptive 458 0 6 1 0 465 465 the HUC11 1992 1,264 216 746 746	ring Consump- tive 32 0 1 5 0 38 38 1 993 1,993 1,993 1,328 223 796	Sum Noncon- sumptive 480 0 9 3 0 492 of gallons) 1994 1,370 227 833	Consump- tive 167 0 1 26 0 194 194	Noncon- sumptive 470 0 4 1 0 475 475 475 1996 1,420 211 909	Consump- tive 41 0 0 6 0 47 47 47 1997 1,276 1977 1977 796	Noncon- sumptive 1,842 0 22 4 0 1,869 1,869 1,869	Consump tive 240 0 2 388 0 281 281 1999 1,231 191 780	average 1,263 201 777	300 300 4 4 4 5
Table 4. Average Set Use Group potable purveyors domestic wells ndustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:	asonal ⁷ Use Wi Noncon-sumptive 434 0 3 0 0 434 0 3 0 0 437 0 1,098 153 696	- Nonconsu nter Consump- tive 0 0 1 1 0 1 1 ansfers ⁸ in 1991 1,230 200 741	Imptive 8 Sp Sp Noncon-sumptive 458 0 6 1 0 465 465 the HUC11 1992 1,264 216 746 746	ring Consump- tive 32 0 1 5 0 38 1 993 1,328 223 796	500 Noncon- sumptive 480 0 9 3 0 492 492 0 of gallons) 1994 1,370 227 833	Consump- tive 167 0 1 26 0 194 194 1995 1,177 198 703	Noncon- sumptive 470 0 4 1 0 470 0 470 0 470 0 470 0 470 0 475	Consump- tive 41 0 6 0 47 47 1997 1,276 197 796	Noncon- sumptive 1,842 0 22 4 0 1,869 1,869 1,869 1,998 1,238 196 770	1999 1,231 1991 1,231 191 780	average 1,263 201 777	300 300 250 200 200 200 100 100 potable domestic industrial & agriculture power generation % irrigation Figure 5. Average Sewage Generation Fig 6. Average Treated-Effluent 1.400 1.200
Table 4. Average Set Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural i rig. power generation SUM:	asonal ⁷ Use Wi Noncon-sumptive 434 0 3 0 0 437	- Nonconsu nter Consump- tive 0 0 1 1 0 1 1 2 2 0 7 4 1 1 2 2 0 7 4 1 1 1 2 2 0 7 4 1 1 1 1 1 1 1 1 1 1 1 1 1	Imptive Sp Sp Sp Noncon-sumptive 458 0 6 1 0 465 465 the HUC11 1992 1,264 216 746 3 aimed-Waa 1992	bring Consump- tive 32 0 1 5 0 38 1 (millions of 1993 1,328 223 796 ter) Dischaa 1993	of gallons) 0 9 3 0 492 492 of gallons) 1994 1,370 227 833 arges ⁹ in the 1994 1,370	Consump- tive 167 0 1 26 0 194 194 1995 1,177 198 703 e HUC11 (m 1995	Noncon- sumptive 470 0 4 1 0 475 475 475 475 1996 1,420 211 909 <i>illions of g</i> 1996	Consump- tive 41 0 6 0 47 47 1997 1,276 197 796 gallons) 1997	Noncon- sumptive 1,842 0 22 4 0 1,869 1,869 1,869 1,998 1,238 196 770	1999 1999	average 1,263 201 777	300 300 250 200 200 100 100 100 purveyors domestic industrial & agriculture power generation % irrigation Figure 5. Average Sewage Genereration & Transfers Fig 6. Average Treated-Effluent 1,400 1,200 1,200 1,200
Table 4. Average Sei Use Group potable purveyors domestic wells ndustrial & commercial & mining agricultural k non- agricultural irrig. power generation SUM:	asonal ⁷ Use Wi Noncon-sumptive 434 0 3 0 0 437	- Nonconsu nter Consump- tive 0 0 1 1 0 1 1 ansfers ⁸ in 1991 1,230 200 741 ffluent (Recl 1991 689	Imptive 8 Sp Sp Noncon-sumptive 458 0 6 1 0 465 465 the HUC11 1992 1,264 216 746 1992 734 2	ring Consump- tive 32 0 1 5 0 38 1 (millions of 1993 1,328 223 796 ter) Discha 1993 755	of gallons) 0 9 3 0 492 492 of gallons) 1994 1,370 227 833 833 arges ^g in the 1994 1994 1,370	Consump- tive 167 0 1 26 0 194 194 194 1995 1,177 198 703 e HUC11 (m 1995 671	Noncon- sumptive 470 0 4 1 0 475	Consump- tive 41 0 0 6 0 47 47 1,276 197 796 gallons) 1997 676	Noncon- sumptive 1,842 0 22 4 0 1,869 1,869 1,869 1,238 196 770 1998 664	1999 12 38 0 281 1999 1,231 191 780 1999 642	average 1,263 201 777 average 687	Figure 5. Average Sewage Generation & Transfers Figure 5. Average Sewage Generation & Transfers Figure 5. Average Sewage Generation
Table 4. Average Sei Use Group potable purveyors domestic wells adustrial & commercial & agricultural enon- agricultural irrig. power generation SUM:	asonal ⁷ Use Wi Noncon-sumptive 434 0 3 0 434 0 3 0 13 1990 1,098 153 696 0 555 0 0	- Nonconsu nter Consump- tive 0 0 1 1 0 1 1 0 1 1 200 741 ffluent (Recl 1991 689 0 0 0	Imptive 8 Sp Sp Noncon-sumptive 458 0 6 1 0 465 465 1,264 216 746 746 'aimed-Wa: 1992 734 0 0 0	tive Consump- tive 32 0 1 5 0 38 1 993 1,328 223 796 ter) Discha 1993 755 0 0	of sumptive 480 0 9 3 0 492 of gallons) 1994 1,370 227 833 33 arges ⁹ in the 1994 764 0 0 0	Consump- tive 167 0 1 26 0 194 194 194 1995 1,177 198 703 e HUC11 (m 1995 671 0 0	Noncon- sumptive 470 0 4 1 0 475 475 475 475 1996 1,420 211 909 211 909 211 909 722 0_0	Consump- tive 41 0 0 6 0 47 47 1997 1,276 197 796 gallons) 1997 676 0 0	Noncon- sumptive 1,842 0 22 4 0 1,869 1,869 1,869 1,869 1,238 196 770 1998 664 0 0	1999 12 38 0 281 1999 1,231 191 780 1999 642 0 0 0	average 1.263 201 777 average 687 0 0	Figure 5. Average Sewage Generation & Transfers Figure 5. Average Sewage Generation & Transfers Figure 5. Average Sewage Generation & Transfers Fig 6. Average Treated-Effluent Discharge Location

 Water Allocations
 ¹⁰ in HUC11 by

 Water Source
 Water Source

 Water Source
 MGY
 15,054 surface water ground water 1,011 total 16,065

Table 8. 1999 Water Allocations¹⁰ in HUC11 by Y

Water Use Group	
Use Group	MGY
agricultural	174
commercial	0
industrial	164
irrigation	172
mining	0
potable supply	15,555
power generation	0

Table 9. I	IUC11 Desc	riptive St	tatistics
Area:			
in this HL	IC11 only	19.8	sq. mi.
upstream	HUC11s	0.0	sq. mi.
total wa	tershed	19.8	sq. mi.
(this HUC11	onshore area:	18.6	sq. mi.)
Populatio	n of this HUC	211:	
Year	Population	Change	_
1940	13,030	-	
1950	15,247	17.0%	
1960	23,691	55.4%	
1970	34,173	44.2%	
1980	36,196	5.9%	
1990	34,083	-5.8%	
2000	36,954	8.4%	
2010	39,473	6.8%	est.12
2020	40,854	3.5%	est.12
2030	42,351	3.7%	est.12

location	#	name	
downstream:	02040202100	Pennsauken Creek	
(if any)			
upstream:			
(if any)			

- Land Use of this HUC11:

Type	Ye	ar	Change
туре	1986	1995	Change
ag.	13.2%	9.6%	-3.6%
barren	2.9%	2.7%	-0.2%
forest	10.1%	8.8%	-1.3%
urban	57.6%	63.1%	5.5%
water	6.6%	6.6%	0.0%
wetlands	9.6%	9.2%	-0.4%
- % of this H	IUC11 in:		
Pinela	nds:	0.0%	
Highla	nds:	0.0%	

NOTES:

1 Salt and brackish water withdrawal and use is not included in this data.

2 This does not account for water released from onstream reservoirs for downstream intakes.

3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.

4 Nonconsumptive water use refers to water used in the watershed but not evaporated.

5 Consumptive water use refers to water evaporated in the watershed. It does not include exports.

6 Use refers only to water actually used in that HUC11. It is equal to freshwater withdrawals + imports - exports. 7 Winter is Jan, Feb, Dec of the same year; spring is March-May; summer is June-Aug; fall is Sept-Nov.

8 Sewage generation and transfers are based on intersection of sewer service areas with HUC11s.
 9 Based on discharge volumes reported under NJPDES program.

10 The allocated volume is calculated from allocation permits on file with the Bureau of Water Allocation, NJDEP, as of 1999. 11 Import and export volumes based on reported transfers between purveyors and on intersection of purveyor service areas with HUC11s.

12 Projected population estimates based on NJ Metropolitan Planning Organization estimates.

13 Subject to revision.

14 Withdrawals for offstream reservoirs are problematic and complicate Figures 1 and 2.





Key for Dise	charge Data		Area of Detail						
<u>1999 Treated Effluent Discharge</u>		e Source		1999	Withdra	wal	Use Group		LA
0 - 50	MGY 🔸	GW Confined		No 1999	Use		Agricultural	٠	1 Lity
50 - 100	MGY 🔸	GW Unconfined	\bigcirc	1 - 50	MGY		Commercial	•	ちまた
100 - 500	MGY 🔶	SW	\bigtriangleup	51 - 100	MGY		Industrial	•	XX 1
> 500	MGY 💧			101 - 500) MGY		Irrigation	•	A Y Y
Other Permitted I	Discharge 🔶	1					Mining	•	CH534
	bischarge =			> 500	MGY		Not Classified		
							Potable Supply		No. T
			MGY	= millions o	fgallons	per year	Power Generation	•	

WMA:			Low	er Delaw	are			18				
HUC11:			Penn	sauken C	reek			02	20402021	00		
Table 1. Freshwater ¹	Withdrawa	s in the HU	C11 (millio	ons of gallo	ons)							
Withdrawals (Q) urface water: ²	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination Fresh Water of Fresh Water
Delaware River other	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	7,000
sum sum/water: ³	0	0	0	0	0	0	0	0	0	0	0	5,000
confined unconfined	4,051 595	5,265 1 028	4,461 2 115	4,565 2 218	4,619 2,358	4,656 3 224	4,033 1 272	3,876 1 641	3,807 1,738	3,950 1 464	4,328 1 765	
sum	4,645	6,293	6,576	6,782	6,977	7,880	5,304	5,517	5,545	5,414	6,093	
lotal withdrawais.	4,045	0,293	0,570	0,702	0,977	7,800	5,504	5,517	5,545	5,414	0,093	1,000
Table 2. Freshwater I	mports To &	Exports Fi	rom the HU	IC11 (milli	ons of gallo	ns)		0.400	0 505	0.504		0 consume consume exports
exports ¹¹	2,300 2,670	1,978 3,872	1,946 4,354	2,010 4,625	1,972 4,727	1,977 5,630	1,988 3,151	2,463 3,421	2,585 3,558	2,521 3,373	2,174 3,938	ground surface imports tive tive (not water water (evaporated) evaporated)
net	(371)	(1,894)	(2,408)	(2,615)	(2,755)	(3,653)	(1,163)	(959)	(974)	(851)	(1,764)	
Table 3. Nonconsum	ptive ⁴ & Co	nsumptive⁵	Water Use	e ⁶ in the H	UC11, by Us	se Type (mi	llions of g	allons)				
Water use otable purvevors	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	- Figure 2. Consumptive 9. Nonconsumptive Lice
nonconsumptive	3,704 469	3,872 513	3,679 469	3,612 496	3,653 476	3,682 485	3,609 445	3,940 530	3,939 549	3,973 520	3,766 495	
omestic wells		E0	 E0	=00	=10	=00	=+-J	E1	E1	520 E1	50	
consumptive	50	50 7	50 7	50 7	50 7	50 7	7	7	7	7	50 7	∑ 3,000 +
nonconsumptive	nining 71	0	0	0	33	0	40	0	0	0	14	je 2,500 +
consumptive gricultural & non-agricultura	8 al irrigation	0	0	0	4	0	4	0	0	0	2	ទី 2,000 + គ
nonconsumptive consumptive	1 7	0 2	1 6	5 43	4 40	5 44	2 15	6 55	5 48	4 34	3 29	
ower generation		-	0	0	0	0	0	0	0	0		
consumptive	0	0	0	0	0	0	0	0	0	0	0	
SUM: nonconsumptive	3,826	3,922	3,730	3,667	3,741	3,737	3,701	3,997	3,995	4,028	3,835	ndustrial & agriculture power commercial & agriculture power purveyors wells mining & irrigation generation
consumptive PERCENTAGES:	491	521	483	545	527	536	472	592	604	561	533	· · · · · · · · · · · · · · · · · · ·
nonconsumptive consumptive	88.6% 11.4%	88.3% 11.7%	88.5% 11.5%	87.1% 12.9%	87.7% 12.3%	87.5% 12.5%	88.7% 11.3%	87.1% 12.9%	86.9% 13.1%	87.8% 12.2%	87.8% 12.2%	
· ·												
Table 4. Average Sea	sonal ⁷ Use	- Nonconsi	Imptive ⁴ &	Consump	tive ⁵ (millio	ons of gallo	ns)					Figure 4. Average Seasonal Consumptive Water Loss, by Use
Use Group	VVI Noncon-	nter Consump-	Sp Noncon-	Consump-	Noncon-	Consump-	Noncon-	all Consump-	Vearl Noncon-	y Avg. Consump		
potable purveyors	sumptive 887	tive 0	sumptive 951	tive 67	sumptive 987	tive 343	sumptive 943	tive 85	sumptive 3,767	tive 495	-	
domestic wells ndustrial & commercial &	12	0	12	1	15	5	12	1	50	7	-	§ 300 +
mining agricultural & non-	1	0	3	0	7	1	3	0	14	2	-	
agricultural irrig.	0	0	1	5	2	18	1	6	3	29	-	
SUM:	899	0	966	73	1,011	366	959	93	3,835	533	-	otable domestic industrial & agriculture power
												purveyors wells commercial & & irrigation generation mining
Table 5. Sewage Gen	eration & Tr	ansfers [®] in	the HUC1	1 (millions	of gallons)							Figure 5. Average Sewage Gen- Fig 6. Average Treated-Effluent
generated in HUC11	1990 4,109	1991 2,476	1992 3,222	1993 2,987	1994 4,229	1995 3,766	1996 4,485	1997 4,305	1998 4,286	1999 4,247	average 3,811	eration & Transfers Discharge Location
imported to HUC11	560 1.688	553 891	575 1 796	598 1 335	622 2 591	499	662 2.658	581 2.548	534 2 527	545 2 521	573	4,000
	1,000	031	1,190	1,000	2,001	2,339	∠,030	∠,J+0	2,321	L,JZ I	2,090	9 3.000
					9 -							
Table 6 Destination	of Treated E 1990	ffluent (Rec 	laimed-Wa 1992	ter) Discha 1993	arges [®] in the <u>199</u> 4	e HUC11 (n <u>199</u> 5	nillions of 1996	gallons) 1997	<u>199</u> 8	<u>199</u> 9	average	
destination		2 084	2,002	2,249	2,260	1,867	2,489	2,339	2,293	2,271	2,218	
destination fresh water	2,323	2,004 0	Ο	Ω	0	0						•
destination fresh water brackish water salt water	2,323 0 0	0	0 0	0 0	0	0	0	0	0	0	0	generated imported exported fresh brackish salt

Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source Water Source MGY surface water 0 ground water 4,509 4,509 total 4,509

Table 8. 1999 Water Allocations ¹⁰ in HUC11 by Water Use Group MGY Use Group agricultural 0 0 commercial 12 71 0 industrial irrigation mining 4,426 potable supply power generation 0

Table 9. HUC11 Descriptive Statistics --- Area: in this HUC11 only 36.4 sq. mi. 0.0 sq. mi. 36.4 sq. mi. upstream HUC11s total watershed (this HUC11 onshore area 36.2 sq. mi.) Population of this HUC11: Year 1940 Population Change 18,617 23,535 26.4% 1950 1960 43,516 84.9% 1970 64,731 48.8% 1980 73,313 13.3% 1990 80.172 9.4% 2000 87,151 8.7%



2010	88,761	1.8%	est."*
2020	90,451	1.9%	est.12
2030	92,547	2.3%	est.12

- Land Use of this HUC11:

Type	Ye	ar	Change	
туре	1986	1995	Change	
ag.	7.2%	3.5%	-3.8%	
barren	3.1%	1.5%	-1.6%	
forest	9.1%	8.2%	-0.9%	
urban	63.4%	71.3%	7.8%	
water	2.1%	2.2%	0.1%	
wetlands	15.0%	13.3%	-1.7%	
% of this H	IUC11 in:			
Pinela	nds:	0.0%		
Highla	inds:	0.0%		

NOTES:

1 Salt and brackish water withdrawal and use is not included in this data.

2 This does not account for water released from onstream reservoirs for downstream intakes.

3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.

4 Nonconsumptive water use refers to water used in the watershed but not evaporated.

5 Consumptive water use refers to water evaporated in the watershed. It does not include exports.

6 Use refers only to water actually used in that HUC11. It is equal to freshwater withdrawals + imports - exports. 7 Winter is Jan, Feb, Dec of the same year; spring is March-May; summer is June-Aug; fall is Sept-Nov.

8 Sewage generation and transfers are based on intersection of sewer service areas with HUC11s.
 9 Based on discharge volumes reported under NJPDES program.

10 The allocated volume is calculated from allocation permits on file with the Bureau of Water Allocation, NJDEP, as of 1999. 11 Import and export volumes based on reported transfers between purveyors and on intersection of purveyor service areas with HUC11s.

12 Projected population estimates based on NJ Metropolitan Planning Organization estimates.

13 Subject to revision.

14 Withdrawals for offstream reservoirs are problematic and complicate Figures 1 and 2.

2006 New Jersey Water Supply Plan

V3.0 NJ Department of Environmental Protection - Land Use Management - New Jersey Geological Survey & Division of Water Supply





Key for Discharge Data		Key for Withdrawal Data	Area of Detail	
1999 Treated Effluent Discharg	e Source	1999 Withdrawal	Use Group	KAS
0 - 50 MGY	GW Confined	No 1999 Use ■●▲	Agricultural 😑	FL DI
50 - 100 MGY	GW Unconfined 📿) 1-50 MGY ■●▲	Commercial 🛛 🔴	ちまむ
100 - 500 MGY	SW	51-100 MGY ■●▲	Industrial 🛛 😑	XX7
> 500 MGY		101 - 500 MGY	Irrigation 🥚	E Y Y
Other Permitted Discharge	6		Mining 😑	C SS SS
other remitted Discharge		> 500 MGY	Not Classified 📃 🌑	
			Potable Supply 🛛 🔵	North Contraction
	MG	GY = millions of gallons per year	Power Generation 🛛 😑	U

WMA:			Low	ver Delaw	/are			18				
HUC11:		Cooper River					02	20402021	110]		
Table 1 Erechuster ¹	Withdrows	la in tha UU	C11 (milli	ana of call	onal						-	
Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination Fresh Water of Fresh Water
Delaware River	1,729	1,485 29	1,096 1	390 0	2 12	2 30	1 20	2 18	14 32	72 22	479 18	12,000
sum	1,740	1,515	1,096	390	12	31	20	20	46	94	497	
confined	12,659	10,089	5,996	5,670	5,762	5,481	9,392	7,566	7,495	7,545	7,765	
unconfined sum	1,348 14,007	1,682 11,770	6,519 12,514	6,695 12,365	6,577 12,339	6,353 11,834	1,741 11,133	1,301 8,867	1,297 8,792	1,588 9,133	3,510 11,275	5 4.000
total withdrawals:	15,747	13,285	13,611	12,755	12,353	11,865	11,154	8,887	8,838	9,227	11,772	
Table 2. Freshwater I	Imports To (& Exports Fr	om the HU	JC11 (milli	ions of gallo	ns)						
imports ¹¹	2,417 4 887	4,595 4 112	4,169 4 596	4,134 4 465	3,925 4 433	4,541 4 243	2,803 3 749	2,973 3 137	3,045 3 157	2,767 3 271	3,537 4,005	ground surface imports consump- nonconsump- exports water water tive (not
net	(2,471)	483	(427)	(330)	(508)	298	(946)	(164)	(112)	(504)	(468)	(evaporated) evaporated)
Table 3 Nonconsum	ntive ⁴ 8 Co	nsumntive ⁵	Water He	e ⁶ in the L	IUC11 by U	se Tune (mi	illions of a	allone				
Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	· · · · · · · · · · · · · · · · · · ·
ootable purveyors nonconsumptive	9,924	10,423	10,353	10,233	10,107	10,386	8,727	7,329	7,245	7,328	9,205	Figure 3. Consumptive & Nonconsumptive Use
consumptive	1,167	1,351	1,292	1,300	1,239	1,274	1,041	942	1,027	916	1,155	
nonconsumptive	33	33	34	34	34	34	34	34	34	34	34	
consumptive	5 nining	5	5	5	5	5	5	5	5	5	5	8,000 +
nonconsumptive	1,692	1,475	1,087	497	138	132	146	158	130	122	558	°° 6000
consumptive aricultural & non-aaricultur	191 ral irrigation	167	123	59	18	18	20	21	18	17	65	
nonconsumptive	3	7	4	4	5	6	6	6	9	13	6	<u>₿</u> 4,000 + 1 4
consumptive	29	63	32	36	48	57	54	57	82	114	57	2,000 +
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0	
consumptive SUM:	0	0	0	0	0	0	0	0	0	0	0	0 +
nonconsumptive	11,653	11,939	11,477	10,768	10,283	10,558	8,912	7,527	7,418	7,496	9,803	purveyors wells mining & irrigation generation
PERCENTAGES:	1,002	1,505	1,452	1,000	1,510	1,000	1,113	1,024	1,101	1,001	1,202	
nonconsumptive consumptive	89.3% 10.7%	88.3% 11.7%	88.8% 11.2%	88.5% 11.5%	88.7% 11.3%	88.6% 11.4%	88.8% 11.2%	88.0% 12.0%	86.8% 13.2%	87.7% 12.3%	88.4% 11.6%	
· · · ·												
Table 4. Average Sea	isonal ⁷ Use	- Nonconsı	mptive ⁴ 8	& Consump	otive⁵ (millio	ons of gallo	ns)					Figure 4 Average Seasonal Consumptive Water Loss by Use
Use Group	Wi Noncon-	nter Consump-	Sp Noncon-	Consump-	Sur Noncon-	nmer Consump-	F Noncon-	all Consump	Yearl - Noncon-	ly Avg. Consump	-	
	sumptive	tive	sumptive	tive	sumptive	tive	sumptive	tive	sumptive	tive	_	
domestic wells	8	0	2,367	162	10	3	2,283	203	34	1,155	_	
industrial & commercial &	124	14	143	17	153	18	137	16	558	65	_	8 600 +
agricultural & non-	0	2	1	7	4	37	1	11	6	57	_	
agricultural irrig.		0	0	0	0	0	0	0	0	0	_	≥ 200
SUM:	2,410	16	2,519	186	2,445	848	2,429	231	9,804	1,282	_	potable domestic industrial & arriculture power
												purveyors wells commercial & & irrigation generation mining
												с. С
	eration & T	ansfers ⁸ in	the HUC1	1 (millione	ofgallone							Figure 5 Average Sourage Cop Eig 6 Average Tracked Efficient
Table 5. Seware Gen	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	eration & Transfers Discharge Location
Table 5. Sewage Gen	0.000	245 0	3,780 0	1,756 0	6,996 0	6,285 0	7,150 0	6,788 0	6,712 0	6,702 0	4,989 0	6,000
Table 5. Sewage Gen generated in HUC11 imported to HUC11	3,480 0		3 790	1,756	6,996	6,285	7,150	6,788	6,712	6,702	4,860	
Table 5. Sewage Gen generated in HUC11 imported to HUC11 exported from HUC11	3,480 0 2,354	76	3,700									
Table 5. Sewage Gen generated in HUC11 imported to HUC11 exported from HUC11	3,480 0 2,354	76	3,700									······································
Table 5. Sewage Gen generated in HUC11 imported to HUC11 exported from HUC11 Table 6. Destination of	3,480 0 2,354	76 ffluent (Rec	laimed-Wa	ater) Discha	arges ⁹ in th	e HUC11 (n	nillions of	gallons)				§ 2,000
Table 5. Sewage Gen generated in HUC11 imported to HUC11 exported from HUC11 Table 6. Destination of destination	3,480 0 2,354 of Treated E 1990	76 <i>iffluent (Rec</i> 1991	1992	ater) Discha	arges ⁹ in th	e HUC11 (n 1995	nillions of	gallons) 1997	1998	1999	average	
Table 5. Sewage Gen generated in HUC11 imported to HUC11 exported from HUC11 Table 6. Destination of destination fresh water brackish water	3,480 0 2,354 of Treated E 1990 1,125 0	76 ffluent (Rec 1991 169 0	1992 0	ater) Discha 1993 0 0	arges⁹ in th <u>1994</u> 0 0	e HUC11 (n 1995 0 0	nillions of 1996 0 0	gallons) 1997 0 0	1998 0 0	<u>1999</u> 0 0	average 129 0	
Table 5. Sewage Gen generated in HUC11 imported to HUC11 exported from HUC11 Table 6. Destination of destination fresh water brackish water salt water	3,480 0 2,354 of Treated E 1990 1,125 0 0	76 ffluent (Rec 1991 169 0 0	1992 0 0	nter) Discha 1993 0 0 0	arges⁹ in th 1994 0 0 0	e HUC11 (n 1995 0 0 0	nillions of 1996 0 0 0	gallons) 1997 0 0 0	1998 0 0 0	1999 0 0 0	average 129 0 0	generated imported exported water water water

7. 1999 Water Alloca	ations ¹⁰ in	Table 9. HUC11 Descriptive Statist					
urce	MGY			Area:			
-	187			in this H	UC11 only	51.3	sq. m
	7,523			upstrear	n HUC11s	0.0	sq. m
total	7,710			total w	atershed	51.3	sq. m
					anahara araa	40.0	
Alloca	ations ¹⁰ in	HUC11 by			Unshore area.	43.0	sy. m.
ater Use	Group			Population of this HUC11:			
Use Group		MGY		Year	Population	Change	
agricultural		58		1940	115,796	-	-
commercial		0		1950	131,424	13.5%	
industrial		112		1960	160,096	21.8%	
irrigation		392		1970	182,701	14.1%	
mining		180		1980	175,916	-3.7%	
e supply		6,968		1990	185,256	5.3%	
er generation		0		2000	182,609	-1.4%	
	total	7 710		2010	180 / 2/	-1 2%	Oct

ocation	#	name
downstream:	02040202120	Woodbury / Big Timber / Newton Creeks
(if any)		
upstream:		
(if any)		

I and Use	of this HUC:	11.	
2030	176,863	-1.3%	est.12
2020	179,229	-0.7%	est.12
2010	180,424	-1.2%	est. "

Luna 000			
Tuno	Ye	ar	Change
туре	1986	1995	Change
ag.	3.7%	1.3%	-2.4%
barren	1.6%	2.0%	0.3%
forest	12.1%	11.3%	-0.9%
urban	67.9%	71.3%	3.4%
water	5.9%	5.9%	0.0%
wetlands	8.7%	8.3%	-0.4%
- % of this H	IUC11 in:		
Pinela	nds:	0.0%	
Linkle		0.00/	

NOTES:

1 Salt and brackish water withdrawal and use is not included in this data.

2 This does not account for water released from onstream reservoirs for downstream intakes.

3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.

4 Nonconsumptive water use refers to water used in the watershed but not evaporated.

5 Consumptive water use refers to water evaporated in the watershed. It does not include exports.

6 Use refers only to water actually used in that HUC11. It is equal to freshwater withdrawals + imports - exports. 7 Winter is Jan, Feb, Dec of the same year; spring is March-May; summer is June-Aug; fall is Sept-Nov.

8 Sewage generation and transfers are based on intersection of sewer service areas with HUC11s.
 9 Based on discharge volumes reported under NJPDES program.

10 The allocated volume is calculated from allocation permits on file with the Bureau of Water Allocation, NJDEP, as of 1999. 11 Import and export volumes based on reported transfers between purveyors and on intersection of purveyor service areas with HUC11s.

12 Projected population estimates based on NJ Metropolitan Planning Organization estimates.

13 Subject to revision.

14 Withdrawals for offstream reservoirs are problematic and complicate Figures 1 and 2.





Key for Dis	charge Dat	ta			Key fo	r Witho	drawal Data		Ĵ	Area of Detail
1999 Treated Ef	fluent Disch	arge	Source		1999	Withdra	wal	Use Group		KA
0 - 50	MGY		GW Confined		No 1999	Use	■●▲	Agricultural	٠	E E
50 - 100	MGY	•	GW Unconfined	\bigcirc	1 - 50	MGY		Commercial	•	SIL
100 - 500	MGY	•	SW	\bigtriangleup	51 - 100	MGY		Industrial	•	XX 1
> 500	MGY	•			101 - 500	MGY		Irrigation	•	
Other Permitted	Discharge							Mining		K K K K
	Dissilarge	50			> 500	MGY		Not Classified		
								Potable Supply		The second
				MGY :	= millions o	fgallons	per year	Power Generation	•	

WMA:			Low	er Delaw	vare			18				
HUC11:		Woodb	ury / Big	Timber /	Newton Cr	eeks		02	20402021	20		
Table 1. Freshwater ¹ Withdrawals (Q)	Withdrawal	s in the HU 1991	C11 (millic 1992	ons of gall	ons) 1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination
rface water: ² Delaware River	6,641	6,125	7,878	7,684	7,523	7,780	7,648	7,130	7,757	8,053	7,422	Eresh Water of Fresh Water
other	23	36	63	91	127	150	84	113	123	470	128	
und-water: 3		0,102	0,404	7,110	7,045	0.540	7,752	0.005	1,013	0,524	7,000	× 14,000 +
confined unconfined	10,070 454	10,663	8,184 1,906	7,878 1,755	8,381 1,438	8,510 1,335	7,460 1,237	6,925 1,635	6,806 1,704	6,552 1,526	8,143 1,405	
sum total withdrawals:	10,524 17,188	11,724 17,885	10,090	9,633	9,819 17.468	9,845	8,697 16,429	8,559 15.802	8,510 16.390	8,079 16.602	9,548 17.098	
		,	-,	, -	,	, -	-, -	-,	-,	-,	,	
Table 2. Freshwater I	mports To &	Exports Fr	om the HU	C11 (mill	ions of gallo	is)						
imports ¹¹ exports ¹¹	5,450 2.870	5,797 3.988	6,251 3,263	6,738 2,951	6,436 2.941	6,703 2,903	5,570 2,523	5,175 2,536	5,266 2,598	5,216 2.327	5,860 2,890	ground surface imports tive tive (not water water (unports)
net	2,580	1,809	2,988	3,787	3,495	3,800	3,047	2,639	2,668	2,889	2,970	. (evapurated) evapurated)
				6								
Table 3. Nonconsum Water use	otive ⁴ & Cor 1990	isumptive⁵ 1991	Water Use 1992	e [°] in the F 1993	HUC11, by Us 1994	e Type (m i 1995	illions of g 1996	allons) 1997	1998	1999	average	
table purveyors	10.070	10.070	10.070	11.000	10.000	11.005	0.005	0.005	0.004	0 707	10.400	Figure 3. Consumptive & Nonconsumptive Use
consumptive	1,276	1,457	1,380	1,480	1,405	1,468	9,695 1,157	9,085 1,251	0,084 1,299	o,727 1,173	1,335	14,000
mestic wells	59	59	61	61	62	63	64	65	65	66	62	12,000
consumptive	8	8	9	9	9	9	9	9	9	9	9	ğ 10,000
lustrial & commercial & m nonconsumptive	ining 7,336	6,583	7,902	7,758	7,689	7,730	7,684	7,180	7,863	8,180	7,591	ê 8,000
consumptive	815	731	878	862	854	859	854	798	874	909	843	e,000
nonconsumptive	11	10	14	15	27	29	17	21	22	58	22	
consumptive	98	91	123	139	242	257	155	187	197	524	201	2 000
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0	
consumptive SUM:	0	0	0	0	0	0	0	0	0	0	0	0
nonconsumptive	17,776	17,625	18,849	18,926	18,678	19,207	17,460	16,350	16,834	17,031	17,874	porable donnestic commercial & agriculture power purveyors wells mining & irrigation generation
PERCENTAGES:	2,190	2,201	2,390	2,409	2,509	2,595	2,175	2,244	2,379	2,010	2,300	
nonconsumptive consumptive	89.0% 11.0%	88.5% 11.5%	88.7% 11.3%	88.4% 11.6%	88.2% 11.8%	88.1% 11.9%	88.9% 11.1%	87.9% 12.1%	87.6% 12.4%	86.7% 13.3%	88.2% 11.8%	
Table 4. Average Sea	sonal ⁷ Use	- Nonconsı	umptive ⁴ &	Consum	otive⁵ (millio	ns of gallo	ns)					
	Win	iter	Spr	ring	Sum	mer	F	all	Yearl	y Avg.		Figure 4. Average Seasonal Consumptive Water Loss, by Use
ose croup	sumptive	tive	sumptive	tive	sumptive	tive	sumptive	tive	sumptive	tive		
potable purveyors domestic wells	2,436 14	0	2,581	<u>183</u> 1	2,668 18	925	2,514 15	226	10,198 62	<u>1,335</u> 9		g 1,000
dustrial & commercial &	1,838	204	1,889	210	1,957	217	1,907	212	7,591	843	•	
agricultural & non-	0	2	3	29	15	136	4	34	22	201		
agricultural irrig. power generation	0		0	0	0	0	0	0	0	0		2 200
SUM:	4,288	207	4,488	423	4,658	1,285	4,439	473	17,874	2,388		potable domestic industrial & agriculture power
												purveyors wells commercial & & irrigation generation mining
	oration 9 T	anofora ⁸ to	the ULO	1 (m:III	of gollans)							
Table 5 Sources Car	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Figure 5. Average Sewage Gen-Fig 6. Average Treated-Effluent eration & Transfers Discharge Location
Table 5. Sewage Gen		1,963	6,074 11 400	3,155 6 168	10,011 17 936	9,024 16 205	10,290 18 494	9,943 18 035	9,683 17 455	9,661 17 407	7,597 13 441	25,000
Table 5. Sewage Gene generated in HUC11	6,171 7,690	3 617	,+00	0,100	0	0	0	0	0	0	0	20,000 +
Table 5. Sewage Gen generated in HUC11 imported to HUC11 exported from HUC11	6,171 7,690 0	3,617 0	0	0								20 Jan 20
Table 5. Sewage Generated in HUC11 imported to HUC11 exported from HUC11	6,171 7,690 0	3,617 0	0	0								
Table 5. Sewage Generated in HUC11 imported to HUC11 exported from HUC11	6,171 7,690 0	3,617 0	0		omoc ⁹ :			aoll)				
Table 5. Sewage Generated in HUC11 imported to HUC11 ixported from HUC11 Table 6. Destination of destination	6,171 7,690 0 >f Treated Ef <u>1990</u>	3,617 0 <i>fluent (Rec</i> <u>199</u> 1	0 <i>laimed-Wa</i> <u>199</u> 2	ter) Disch	arges⁹ in the <u>199</u> 4	e HUC11 (n <u>199</u> 5	nillions of <u>199</u> 6	gallons) 1997	<u>199</u> 8	<u>199</u> 9	average	
Table 5. Sewage Generated in HUC11 imported to HUC11 xported from HUC11 Table 6. Destination of destination fresh water broakies under	6,171 7,690 0 >f Treated Ef 1990 13,150	3,617 0 <i>fluent (Rec.</i> <u>1991</u> 5,494	0 <i>laimed-Wa</i> 1992 17,473	ter) Disch 1993 9,323	arges⁹ in the 1994 27,947	e HUC11 (n 1995 25,229	1996 28,784	gallons) 1997 27,979	1998 27,137	1999 27,068	average 20,958	

Table 8. 1999 Water Allocations ¹⁰ Water Use Group	in HUC11 by
Use Group	MGY
agricultural	351
commercial	0
industrial	11,835
irrigation	432
mining	0
potable supply	10,134
power generation	0



Table 10. Upstream and downstream HUC11s (in NJ)										
location	#	name								
downstream:	02040202140	Cedar Swamp / Repaupo Ck / Clonmell Ck								
(if any)										
upstream:										
(if any)										

2010	300,626	1.3%	est.12
2020	300,933	0.1%	est.12
2030	301,322	0.1%	est.12

- Land Use of this HUC11:

Turne	Ye	ar	Change
туре	1986	1995	Change
ag.	6.5%	4.0%	-2.5%
barren	1.8%	2.4%	0.6%
forest	19.1%	17.7%	-1.4%
urban	57.6%	61.1%	3.5%
water	5.3%	5.2%	-0.1%
wetlands	9.8%	9.6%	-0.2%
% of this H	IUC11 in:		
Pinela	nds:	0.0%	
Highla	nds:	0.0%	

NOTES:

1 Salt and brackish water withdrawal and use is not included in this data.

2 This does not account for water released from onstream reservoirs for downstream intakes.

3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.

4 Nonconsumptive water use refers to water used in the watershed but not evaporated.

5 Consumptive water use refers to water evaporated in the watershed. It does not include exports.

6 Use refers only to water actually used in that HUC11. It is equal to freshwater withdrawals + imports - exports. 7 Winter is Jan, Feb, Dec of the same year; spring is March-May; summer is June-Aug; fall is Sept-Nov.

8 Sewage generation and transfers are based on intersection of sewer service areas with HUC11s.
 9 Based on discharge volumes reported under NJPDES program.

10 The allocated volume is calculated from allocation permits on file with the Bureau of Water Allocation, NJDEP, as of 1999. 11 Import and export volumes based on reported transfers between purveyors and on intersection of purveyor service areas with HUC11s.

12 Projected population estimates based on NJ Metropolitan Planning Organization estimates.

13 Subject to revision.

14 Withdrawals for offstream reservoirs are problematic and complicate Figures 1 and 2.





Key for Discharge Da	ta			Key for V	Nithd	rawal Data		Ì	Area of Detail
1999 Treated Effluent Disch	arge	Source		1999 Wi	ithdrav	wal	Use Group		LA
0 - 50 MGY	٠	GW Confined		No 1999 Us	se		Agricultural	٠	1 Lity
50 - 100 MGY	٠	GW Unconfined	\bigcirc	1-50 N	MGY	■●▲	Commercial	•	5 FT
100 - 500 MGY	•	SW	\bigtriangleup	51 - 100 N	MGY		Industrial	•	XX7
> 500 MGY	•			101 - 500 M	MGY		Irrigation	•	
Other Permitted Discharge							Mining		A SSA
other i ennited Dicentarye	-			> 500 N	MGY		Not Classified	•	
							Potable Supply		The former
			MGY	= millions of g	allonsp	oer year	Power Generation	•	

WMA:			Low	er Delaw	are			18				
HUC11:			Ма	ntua Cree	ek			02	2040202 ⁻	130]	
Table 1 Freshwater ¹	Withdrawa	s in the HU	C11 (millic	one of gally	one)							
Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination
Delaware River	0	0	0	0	0	0	0	0	0	0	0	4,000
other sum	44 44	277 277	<u>116</u> 116	69 69	68 68	<u>311</u> 311	52 52	84 84	119 119	318 318	146 146	3,500
ound-water: ³	2 476	2 240	2 260	2 270	2 559	2 0 2 0	2 250	2 000	2 507	2 272	2 702	∑2,500 +
unconfined	2,476 544	3,218 751	3,360 712	5,578 663	2,558 741	2,828 796	2,350 734	2,880 890	2,507 764	2,372 747	734	
sum	3,020	3,968	4,072	4,040	3,298	3,623	3,084	3,770	3,272	3,119	3,527	
	0,004	4,240	4,100	4,110	0,000	0,004	0,100	0,004	0,000	0,401	0,010	500
Table 2. Freshwater In imports ¹¹	nports To & 834	Exports Fr 802	om the HU 754	C11 (millio) 748	ons of galloi 1.237	1s) 1.187	1.201	1.135	1.159	1.052	1.011	ground surface imports consump- nonconsump- exports
exports ¹¹	827	1,185	1,193	1,327	1,043	1,054	960	1,117	969	996	1,067	water water (evaporated)
net	1	(382)	(439)	(579)	194	133	241	10	191	90	(36)	
Table 3. Nonconsum	otive ⁴ & Co	nsumptive⁵	Water Use	e ⁶ in the H	UC11, by Us	e Type (mi	llions of g	allons)				
Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Figure 2 Companying a Name and the Unit
nonconsumptive	2,146	2,271	2,209	2,335	2,345	2,458	2,227	2,524	2,376	2,204	2,309	3,000
consumptive mestic wells	268	303	285	325	313	343	288	350	341	317	313	2 500
nonconsumptive	152	153	155	156	158	159	160	161	163	164	158	
dustrial & commercial & m	≥ ı ining	22	22	22	22	22	22	23	23	23	22	∑ 2,000 +
nonconsumptive	370 43	712 81	796 90	492 57	576 66	659 76	550 63	606 71	419 49	319 38	550 63	
ricultural & non-agricultura	al irrigation				-		_					
nonconsumptive consumptive	7 64	32 288	19 173	13 116	8 72	35 315	7 59	14 123	21 190	43 385	20 179	Ē 1,000
ower generation	0	0	0	0	0	0	0	0	0	0	0	500
consumptive	0	0	0	0	0	0	0	0	0	0	0	
SUM: nonconsumptive	2.675	3.168	3,179	2.996	3.086	3.312	2.944	3.305	2.979	2,730	3.037	industrial & industrial & potable domestic commercial & agriculture power
consumptive	397	694	570	520	474	756	433	566	602	763	578	- purveyors wens mining a mgauon generation
nonconsumptive	87.1%	82.0%	84.8%	85.2%	86.7%	81.4%	87.2%	85.4%	83.2%	78.2%	84.0%	
consumptive	12.9%	18.0%	15.2%	14.8%	13.3%	18.6%	12.8%	14.6%	16.8%	21.8%	16.0%	
Table A Average Sea	sonal ⁷ Use	Nonconsi	umptivo ⁴ 8	Consumn	tivo ⁵ (millio	ns of gallo	ne)					
Table 4. Average Sea	Wi	nter	Sp	ring	Sum	mer	F	all	Year	ly Avg.		Figure 4. Average Seasonal Consumptive Water Loss, by Use
Use Group	Noncon- sumptive	Consump- tive	Noncon- sumptive	Consump- tive	Noncon- sumptive	Consump- tive	Noncon- sumptive	Consump- tive	 Noncon- sumptive 	Consump tive		ð 300
potable purveyors	534	0	569	42	634	220	574	51	2,311	313	-	
dustrial & commercial &	126	1/	151	17	1/7	17	126	15	550	63	-	
mining agricultural & non-	120		101				120		550		-	<u><u><u>6</u></u> 100</u>
agricultural irrig.	0	1	2	18	15	137	3	23	20	179	-	
SUM:	697	15	759	79	843	390	0 741	93	3,039	578	-	0 +
												potable domestic industrial a agriculture power purveyors wells commercial & irrigation generation
												niinig
Table 5. Sewage Gen	eration & Tr	ansfers [®] in	the HUC1	1 (millions	of gallons)							Figure 5. Average Sewage Gen- Fig 6. Average Treated-Effluent
generated in LUC11	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	eration & Transfers Discharge Location
imported to HUC11	0 0	1,512 0	0	0 0	0 0	0	∠,044 0	∠,151 0	1,980 0	0 0	0	
exported from HUC11	1,383	1,512	1,789	1,225	1,935	1,780	2,044	2,151	1,980	1,965	1,776	
Table 6. Destination of	f Treated E	ffluent (Rec	laimed-Wa	ter) Discha	arges [®] in the	e HUC11 (m	nillions of	gallons)				
destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	
tresh water brackish water	0	0	0	0	0	0	0	0	0	U 0	0	
	0	0	0	0	0	0	0	0	0	0	0	generated imported exported fresh brackish salt water water water
salt water	0	0	0		n –						1 1	in HU(11

1999 Water Allo Water S	Table 9.	Table 9. HUC11 Descriptive Statistic					
er Source	MGY			Area:			
ace water	689			in this H	UC11 only	50.2	sq. i
ound water	7,123			upstrear	n HUC11s	0.0	sq.
total	7,812			total w	atershed	50.2	sq.
				(this HUC11	onshore area:	50.1	sq. ı
. 1999 Water Allo Water Us	cations ¹⁰ in	HUC11 by		Populati	on of this HU(C11:	
Use Group		MGY		Year	Population	Change	
agricultural		3,310		1940	20,665	-	-
commercial		0		1950	25,800	24.8%	
industrial		964		1960	40,394	56.6%	
irrigation		115		1970	53,041	31.3%	
mining		116		1980	58,617	10.5%	
potable supply		3,306		1990	66,783	13.9%	
power generatio	n	0		2000	75,626	13.2%	

Table 10. Upstream and downstream HUC11s (in NJ)									
location	#	name							
downstream:	02040202140	Cedar Swamp / Repaupo Ck / Clonmell Ck							
(if any)									
upstream:									
(if any)									

1330	23,000	24.070	
1960	40,394	56.6%	
1970	53,041	31.3%	
1980	58,617	10.5%	
1990	66,783	13.9%	
2000	75,626	13.2%	
2010	81,113	7.3%	est.12
2020	87,031	7.3%	est.12
2030	91,963	5.7%	est.12

- Land Use of this HUC11:

Type	Ye	Change						
iype	1986	1995	Gnallye					
ag.	25.8%	20.3%	-5.5%					
barren	2.4%	2.3%	-0.1%					
forest	22.7%	21.5%	-1.2%					
urban	38.3%	45.3%	7.0%					
water	2.1%	2.1%	0.0%					
wetlands	8.7%	8.5%	-0.2%					
- % of this HUC11 in:								
Pinela	nds:	0.0%						
Highla	nds:	0.0%						

NOTES:

1 Salt and brackish water withdrawal and use is not included in this data.

2 This does not account for water released from onstream reservoirs for downstream intakes.

3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.

4 Nonconsumptive water use refers to water used in the watershed but not evaporated.

5 Consumptive water use refers to water evaporated in the watershed. It does not include exports.

6 Use refers only to water actually used in that HUC11. It is equal to freshwater withdrawals + imports - exports. 7 Winter is Jan, Feb, Dec of the same year; spring is March-May; summer is June-Aug; fall is Sept-Nov.

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12 Projected population estimates based on NJ Metropolitan Planning Organization estimates.

13 Subject to revision.

14 Withdrawals for offstream reservoirs are problematic and complicate Figures 1 and 2.

к	ey for Dis	scharge Dat	a	Key for Withdrawal Data						Area of Detail	
1999	Treated Et	ffluent Discha	arge	Source		1999 Withdrawal			Use Group		LA
0) - 50	MGY		GW Confined		No 1999	Use	H ØA	Agricultural		22.24
5	50 - 100	MGY	•	GW Unconfined	\bigcirc	1 - 50	MGY		Commercial	•	ちまれ
1	00 - 500	MGY	•	SW	\bigtriangleup	51 - 100	MGY		Industrial	•	4457
>	• 500	MGY	•			101 - 500	MGY		Irrigation	•	E T
Other	Permitted	Discharge							Mining		
		J				> 500	MGY		Not Classified		
									Potable Supply		the start
					MGY =	= millions o	fgallons	per year	Power Generation	•	

			Low	er Delaw	are			18											
HUC11:		Cedar S	wamp / R	epaupo	Ck / Clonm	ell Ck		02	0402021	40									
Table 1. Freshwater ¹	Withdrawa	ls in the HU	C11 (millio	ons of galle	ons)								Fig 4		ouroo of	F.		na Daatinatia	
Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average		Fig 1.	Fresh Wat	er	F	of Free	ge Destinatio sh Water	'n
Delaware River other	18,009 316	18,087 258	16,987 257	12,842 384	5,071 368	5,641 439	4,715 162	5,213 441	5,267 239	5,285 330	9,711 319	12,000 -							
sum	18,324	18,345	17,244	13,226	5,439	6,079	4,876	5,654	5,506	5,615	10,031	_ 10,000 · 							
confined	1,669	945	866	970	849	874	971	1,111	1,839	1,067	1,116	_ 8,000 · 200 ·							
unconfined sum	431 2,100	930 1,876	908 1,774	697 1,667	763 1,612	779 1,652	749 1,721	719 1,829	829 2,669	741 1,808	755 1,871	8 5 4.000 -		_					
total withdrawals:	20,425	20,221	19,018	14,893	7,051	7,732	6,597	7,483	8,174	7,423	11,902	2,000 ·		-					
Table 2. Freshwater In	nports To &	Exports Fr	om the HU	C11 (milli	ons of gallor	ns) 300	254	208	310	300	272	0 -	ground	aurface	importo	1	consump-	nonconsump-	exports
exports ¹¹	16	25	234	26	27	29	33	35	33	31	28		water	water	impons	(tive (evaporated)	tive (not evaporated)	
net	187	232	230	250	244	271	221	262	277	269	244								
Table 3. Nonconsum	otive ⁴ & Co	nsumptive⁵	Water Use	e ⁶ in the H	IUC11, by Us	se Type (m	illions of g	allons)											
Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average				. .	• • •	_		
nonconsumptive	326	439	427	456	464	508	505	554	550	526	475	12,000		Figure 3.	Consumptiv	e & Nonc	consumptive	e Use	
consumptive	35	65	57	67	63	71	64	81	165	73	74	40.000							
nonconsumptive consumptive	46 6	46 7	47 7	48 7	49 7	50 7	51 7	53 7	54 8	55 8	50 7	10,000 ₩ × 8.000							
dustrial & commercial & m nonconsumptive	ining 17,857	17,629	16,550	12,689	5,683	6,187	5,352	5,741	5,857	5,763	9,931	, suo							
consumptive	1,988	1,965	1,846	1,415	639	696	601	639	653	642	1,108	≝e 6,000							
nonconsumptive	33 301	28 251	31 281	45 404	39 351	48 432	24 213	68 610	55 497	65 588	44 393	illiw 4,000							
consumptive											000								
wer generation	0	0	0	0	0	0	0	0	0	0	0	2,000							
wer generation nonconsumptive consumptive	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	2,000 0			·	ductrial 9		·	
ower generation nonconsumptive consumptive SUM: nonconsumptive	0 0 18,263	0 0 18,142	0 0 17,055	0 0 13,238	0 0 6,235	0 0 6,794	0 0 5,932	0 0 6,415	0 0 6,516	0 0 6,410	0 0 10,500	2,000	potable purveyors	dome	estic con	dustrial & nmercial & mining	agricultu & irrigati	ure p ion gen	bower heration
wer generation nonconsumptive consumptive SUM: nonconsumptive consumptive PERCENTAGES:	0 0 18,263 2,330	0 0 18,142 2,287	0 0 17,055 2,191	0 0 13,238 1,893	0 0 6,235 1,059	0 0 6,794 1,205	0 0 5,932 885	0 0 6,415 1,337	0 0 6,516 1,323	0 0 6,410 1,311	0 0 10,500 1,582	2,000	potable purveyors	dome wel	estic con	dustrial & nmercial & mining	agricultu & irrigati	ure p ion gen	power heration
wer generation nonconsumptive consumptive SUM: nonconsumptive PERCENTAGES: nonconsumptive consumptive	0 0 18,263 2,330 88.7% 11.3%	0 0 18,142 2,287 88.8% 11.2%	0 0 17,055 2,191 88.6% 11.4%	0 0 13,238 1,893 87.5% 12.5%	0 0 6,235 1,059 85.5% 14.5%	0 0 6,794 1,205 84.9% 15.1%	0 0 5,932 885 87.0% 13.0%	0 0 6,415 1,337 82.7% 17.3%	0 0 6,516 1,323 83.1% 16.9%	0 0 6,410 1,311 83.0% 17.0%	0 0 10,500 1,582 86.9% 13.1%	2,000	potable purveyors	dome wel	estic ind ls	dustrial & nmercial & mining umptive c	agricultu & irrigati	ure p ion gen	oower heration
wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive	0 0 18,263 2,330 88.7% 11.3%	0 0 18,142 2,287 88.8% 11.2%	0 0 17,055 2,191 88.6% 11.4%	0 0 13,238 1,893 87.5% 12.5%	0 0 6,235 1,059 85.5% 14.5%	0 0 6,794 1,205 84.9% 15.1%	0 0 5,932 885 87.0% 13.0%	0 0 6,415 1,337 82.7% 17.3%	0 0 6,516 1,323 83.1% 16.9%	0 0 6,410 1,311 83.0% 17.0%	0 0 10,500 1,582 86.9% 13.1%	2,000	potable purveyors	dome wel	int estic con Is ∎nonconsu	dustrial & nmercial & mining umptive ∎c	agricultu & irrigati	ure p ion gen	bower heration
wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive	0 0 18,263 2,330 88.7% 11.3%	0 0 18,142 2,287 88.8% 11.2% - Nonconsu	0 0 177,055 2,191 88.6% 11.4% mptive ⁴ &	0 0 13,238 1,893 87.5% 12.5% Consump	0 0 6,235 1,059 85.5% 14.5%	0 0 6,794 1,205 84.9% 15.1%	0 0 5,932 885 87.0% 13.0%	0 0 6,415 1,337 82.7% 17.3%	0 0 6,516 1,323 83.1% 16.9%	0 0 6,410 1,311 83.0% 17.0%	0 0 10,500 1,582 86.9% 13.1%	2,000	potable purveyors	dome wel	estic con	dustrial & nmercial & mining umptive c	agricultu & irrigati	ure p ion gen	xower heration
wer generation nonconsumptive SUM: nonconsumptive Consumptive PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group	0 0 18,263 2,330 88.7% 11.3% sonal ⁷ Use Wi Noncon-	0 0 18,142 2,287 88.8% 11.2% - Nonconsu nter Consump-	0 0 17,055 2,191 88.6% 11.4% mptive⁴ & Sp Noncon-	0 0 13,238 1,893 87.5% 12.5% Consump Consump	0 0 6,235 1,059 85.5% 14.5% ptive ⁵ (millio Sum Noncon-	0 0 6,794 1,205 84.9% 15.1% mer Consump- Consump-	0 0 5,932 885 87.0% 13.0%	0 0 6,415 1,337 82.7% 17.3% all	0 0 6,516 1,323 83.1% 16.9% Yearl	0 0 6,410 1,311 83.0% 17.0% y Avg. Consump.	0 0 10,500 1,582 86.9% 13.1%	2,000 0	potable purveyors Figure 4	dome wel	istic con Is Is Seasonal Co	dustrial & nmercial & mining umptive c	agricultu & irrigati consumptive	ure p fon gen	ower heration
wer generation nonconsumptive SUM: nonconsumptive Consumptive PERCENTAGES: nonconsumptive consumptive Consumptive Table 4. Average Sea Use Group	0 0 18,263 2,330 88.7% 11.3% sonal ⁷ Use Wi Noncon- sumptive	0 0 18,142 2,287 88.8% 11.2% - Nonconsu nter Consump- tive	0 0 17,055 2,191 88.6% 11.4% mptive ⁴ & Sp Noncon- sumptive	0 0 13,238 1,893 87.5% 12.5% Consump ring Consump- tive	0 6,235 1,059 85.5% 14.5% ptive ⁵ (millio Sum Noncon- sumptive	0 0 6,794 1,205 84.9% 15.1% mer Consump- tive	0 0 5,932 885 87.0% 13.0%	0 0 6,415 1,337 82.7% 17.3% all Consump- tive	0 0 6,516 1,323 83.1% 16.9% Yearl Noncon- sumptive	0 0 6,410 1,311 83.0% 17.0% y Avg. Consump tive	0 0 10,500 1,582 86.9% 13.1%	2,000 0 1,200 1,000	potable purveyors Figure 4	dome wel	stic con Is nonconsu Seasonal Co	dustrial & mercial & mining	agricultu & irrigati consumptive	ure p fon gen	vower heration
Ver generation nonconsumptive consumptive SUM: nonconsumptive PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group potable purveyors domestic wells	0 0 18,263 2,330 88.7% 11.3% sonal ⁷ Use Wi Noncon- sumptive 126 11	0 0 18,142 2,287 88.8% 11.2% - Nonconsu nter Consump- tive 0 0	0 0 17,055 2,191 88.6% 11.4% mptive ⁴ & Sp Noncon- sumptive 132 12	0 0 13,238 1,893 87.5% 12.5% Consump- tive 10 1	0 6,235 1,059 85.5% 14.5% btive ⁵ (millio Sum Noncon- sumptive 151 15	0 6,794 1,205 84.9% 15.1% ms of gallo mmer Consump- tive 52 5	0 0 5,932 885 87.0% 13.0%	0 0 6,415 1,337 82.7% 17.3% all Consump- tive 12 1	0 0 6,516 1,323 83.1% 16.9% Yearl Noncon- sumptive 543 50	0 0,410 1,311 83.0% 17.0% y Avg. Consump tive 74 7	0 0 10,500 1,582 86.9% 13.1%	2,000 0	potable purveyors Figure	dome wel	seasonal Co	dustrial & nmercial & mining	agricultu & irrigati consumptive	ure p ion gen	winter
wer generation nonconsumptive consumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive Consumptive Table 4. Average Seat Use Group potable purveyors domestic wells mining	0 0 18,263 2,330 88.7% 11.3% sonal ⁷ Use Wi Noncon- sumptive 126 11 2,334	0 0 18,142 2,287 88.8% 11.2% - Nonconsu nter Consump- tive 0 0 0 260	0 0 17,055 2,191 88.6% 11.4% mptive ⁴ & Sp Noncon- sumptive 132 12 2,378	0 0 13,238 1,893 87.5% 12.5% Consump- tive 10 10 1 266	0 0 6,235 1,059 85.5% 14.5% bitve ⁵ (millio Sum Noncon- sumptive 151 15 2,720	0 0 6,794 1,205 84.9% 15.1% mer Consump- tive 52 5 304	0 0 5,932 885 87.0% 13.0% Noncon- sumptive 134 12 2,499	0 0 6,415 1,337 82.7% 17.3% all Consump- tive 12 1 1 279	0 0 6,516 1,323 83.1% 16.9% Vearl Noncon- sumptive 543 50 9,931	0 6,410 1,311 83.0% 17.0% y Avg. Consump tive 74 7 1,108	0 0 10,500 1,582 86.9% 13.1%	2,000 0 1,200 1,000 × 800 9 800 9 800 9 9 0 9 0 0 0	potable purveyors Figure 4	dome wel	stic interest interes	dustrial & mmercial & mining	agricultu & irrigati	oss, by Use	power heration
Ver generation nonconsumptive SUM: nonconsumptive SUM: nonconsumptive PERCENTAGES: nonconsumptive consumptive Consumptive Table 4. Average Sea Use Group potable purveyors domestic wells ndustrial & commercial & mining agricultural & non-	0 0 18,263 2,330 88.7% 11.3% sonal ⁷ Use Wi Noncon- sumptive 126 11 2,334 0	0 0 18,142 2,287 88.8% 11.2% - Nonconsunter Consump- tive 0 0 260 0	0 0 17,055 2,191 88.6% 11.4% mptive ⁴ & Sp Noncon- sumptive 132 12 2,378 4	0 0 13,238 1,893 87.5% 12.5% Consump tive 10 10 1 266 37	0 0 6,235 1,059 85.5% 14.5% btive⁵ (millio Sum Noncon- sumptive 151 15 2,720 32	0 0 6,794 1,205 84.9% 15.1% mer Consump- tive 52 5 304 288	0 0 5,932 885 87.0% 13.0% Noncon- sumptive 134 12 2,499 8	0 0 6,415 1,337 82.7% 17.3% all Consump- tive 12 1 279 68	0 0 6,516 1,323 83.1% 16.9% Vearl Noncon- sumptive 543 50 9,931 44	0 0 6,410 1,311 83.0% 17.0% y Avg. Consump tive 74 7 1,108 393	0 0 10,500 1,582 86.9% 13.1%	2,000 0 1,200 	potable purveyors Figure 4	dome wel	stic con Is nonconsu Seasonal Co	dustrial & nmercial & mining	agricultu & irrigati	ure p fon gen	
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Table 4. Average Sea Use Group Description Description Description Table 4. Average Sea Use Group Detable purveyors domestic wells doustrial & commercial & mining agricultural irrig. power generation SUM: SUM: Table 5. Sewage Gene generated in HUC11 imported to HUC11 imported from HUC11	0 0 18,263 2,330 88.7% 11.3% sonal ⁷ Use Wi Noncon- sumptive 126 11 2,334 0 0 2,472 eration & Tr 1990 388 0 388	0 0 18,142 2,287 88.8% 11.2% - Nonconsunter Consump- tive 0 260 0 260 0 260 0 260 0 260 0 260 0 260 0 260	0 0 17,055 2,191 88.6% 11.4% mptive ⁴ & Sp Noncon- sumptive 12 2,378 4 0 2,525 the HUC11 1992 656 0 475	0 0 13,238 1,893 87.5% 12.5% Consump- tive 10 1 1 266 37 0 313 4 (<i>millions</i> 1993 569 0 344	0 0 6,235 1,059 85.5% 14.5% bive ⁵ (millio Sum Noncon- sumptive 151 15 2,720 32 0 2,917 of gallons) 1994 770 0 517	0 0 6,794 1,205 84.9% 15.1% mer Consump- tive 52 5 304 288 0 649 649 1995 684 0 473	0 0 5,932 885 87.0% 13.0% 7000 548 87.0% 13.0% 7000 7000 7000 7000 7000 7000 7000 7	0 0 6,415 1,337 82.7% 17.3% 17	0 0 6,516 1,323 83.1% 16.9% Yearl Noncon- sumptive 543 50 9,931 44 0 10,568 1998 777 0 533	0 0 6,410 1,311 83.0% 17.0% y Avg. Consump tive 74 7 1,108 393 0 1,582 1999 815 0 524	0 0 10,500 1,582 86.9% 13.1%	2,000 0 1,200 1,200 400 200 0 9 0 9 0 9 0 9 0 9 0 0 0 0 0 0 0	potable purveyors Figure 4 - -	dome well Average Si eration & T	seasonal Co Seasonal Co industr commer industr commer miniti ewage Gen- ransfers	dustrial & nmercial & mining	agriculture agriculture agriculture agriculture agriculture agriculture agriculture	rre p ion gen oss, by Use power generatio	power heration
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Water SourceceMGYer4,667 Water Source surface water 11,568 total 16,235 ground water

Table 8. 1999 Water Allocations ¹⁰ Water Use Group	in HUC11 by
Use Group	MGY
agricultural	3,158
commercial	0
industrial	12,290
irrigation	74
mining	318
potable supply	395
power generation	0

Table 9. HUC11 Descriptive Statistics								
Area:								
in this Hl	JC11 only	41.0	sq. mi.					
upstrean	n HUC11s	50.2	sq. mi.					
total wa	atershed	91.2	sq. mi.					
(this HUC11	onshore area:	36.0	sq. mi.)					
Populatio	on of this HUC	C11:						
Year	Population	Change						
1940	7,237	-						
1950	8,577	18.5%						
1960	9,904	15.5%						
1970	11,926	20.4%						
1980	12,534	5.1%						
1990	14,017	11.8%						
2000	14,838	5.9%						

Table 10. Upstream and downstream HUC11s (in NJ)							
location	#	name					
downstream:	02040202150	Raccoon Creek / Birch Creek					
(if any)							
upstream:	02040202130	Mantua Creek					
(if any)							

2010	16,070	8.3%	est.'2
2020	17,676	10.0%	est.12
2030	19,164	8.4%	est.12

- Land Use of this HUC11:

Tuno	Ye	Change						
Type	1986	1995	Change					
ag.	34.5%	32.1%	-2.3%					
barren	1.4%	1.4%	-0.1%					
forest	6.6%	6.8%	0.2%					
urban	16.0%	18.3%	2.3%					
water	14.5%	14.5%	0.0%					
wetlands	27.1%	26.9%	-0.1%					
% of this HUC11 in:								
Pinela	inds:	0.0%						
Highla	ands:	0.0%						

NOTES:

1 Salt and brackish water withdrawal and use is not included in this data.

2 This does not account for water released from onstream reservoirs for downstream intakes.

3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.

4 Nonconsumptive water use refers to water used in the watershed but not evaporated.

5 Consumptive water use refers to water evaporated in the watershed. It does not include exports.

6 Use refers only to water actually used in that HUC11. It is equal to freshwater withdrawals + imports - exports. 7 Winter is Jan, Feb, Dec of the same year; spring is March-May; summer is June-Aug; fall is Sept-Nov.

8 Sewage generation and transfers are based on intersection of sewer service areas with HUC11s.
 9 Based on discharge volumes reported under NJPDES program.

10 The allocated volume is calculated from allocation permits on file with the Bureau of Water Allocation, NJDEP, as of 1999. 11 Import and export volumes based on reported transfers between purveyors and on intersection of purveyor service areas with HUC11s.

12 Projected population estimates based on NJ Metropolitan Planning Organization estimates.

13 Subject to revision.

14 Withdrawals for offstream reservoirs are problematic and complicate Figures 1 and 2.

Key for Discharge	Data	Key for Withdrawal Data						Area of Detail	
1999 Treated Effluent Dis	scharge	Source	1999 Withdrawal			Use Group		LA	
0 - 50 MGY		GW Confined		No 1999	Use	H ¢A	Agricultural		2 Del
50 - 100 MGY	٠	GW Unconfined	\bigcirc	1 - 50	MGY	■●▲	Commercial	•	512E
100 - 500 MGY	•	SW	\bigtriangleup	51 - 100	MGY		Industrial	•	K SCT
> 500 MGY	•			101 - 500	MGY		Irrigation	•	a tra
Other Permitted Discharg	e 🆕				in o i		Mining	•	
				> 500	MGY		Not Classified		
							Potable Supply		the start
			MGY	= millions o	fgallons	per year	Power Generation	•	

WMA:	Lower Delaware					18						
HUC11:		R	accoon C	reek / Bi	rch Creek			02	2 040202 1	150]	
Table 1 Freshwater ¹	Withdrawal	s in the HU(211 (millio	ons of gallo	ns)							
Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination Fresh Water of Fresh Water
Delaware River	0	0 164	0 78	0 124	0 107	0	0 78	0 145	0 186	0 241	0	
sum	35	164	78	124	107	198	78	145	186	241	136	
confined	473	294	383	301	351	407	392	638	436	432	411	
unconfined sum	213 685	466 760	479 862	474 775	504 854	563 970	523 914	705 1,343	696 1,132	626 1,058	525 935	g 400
total withdrawals:	721	924	940	899	962	1,168	992	1,488	1,318	1,299	1,071	
Table 2. Freshwater I	mports To &	Exports Fre	om the HU	C11 (millio	ons of gallon	s)	12	13	13	18	12	around surface imports consump- nonconsump- exports
exports ¹¹	86	131	135	142	154	173	148	173	188	175	150	water water (evaporated)
Tiet	(70)	(121)	(125)	(130)	(142)	(101)	(130)	(100)	(175)	(156)	(136)	
Table 3. Nonconsum	ptive ⁴ & Cor	sumptive ⁵	Water Use	⁶ in the H	UC11, by Us	e Type (mi	Ilions of g	allons)	1009	1000	averago	
otable purveyors	1990	1991	1332	1993	1334	1990	1990	1531	1990	1999	average	Figure 3. Consumptive & Nonconsumptive Use
nonconsumptive consumptive	256 35	286 39	292 40	269 37	340 47	365 51	362 47	401 58	450 63	417 61	344 48	
omestic wells nonconsumptive	159	161	164	167	172	175	179	185	191	197	175	350
consumptive	22 Dinina	23	23	24	24	25	25	26	27	28	25	ق 300
nonconsumptive	95	83	145	93	83	107	104	340	111	106	127	g 250 + 250
gricultural & non-agricultur	al irrigation	12	24	18	15	10	15	42	17	15	19	0 200 + 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5
nonconsumptive consumptive	7 59	20 180	13 115	16 140	14 126	27 239	14 130	33 293	28 256	32 284	20 182	
ower generation nonconsumptive	0	0	0	0	0	0	0	0	0	0	0	50 +
consumptive SUM	0	0	0	0	0	0	0	0	0	0	0	0 + industrial &
nonconsumptive	517 128	549 254	614	545 219	608 212	674 333	659 217	959 419	780 363	752	666 273	potable domestic commercial & agriculture power purveyors wells mining & irrigation generation
PERCENTAGES:	80.1%	68.4%	75.3%	71 /9/	74.2%	66.0%	75.2%	60.6%	68.2%	66.0%	70.0%	nonconsumptive consumptive
consumptive	19.9%	31.6%	24.7%	28.6%	25.8%	33.1%	24.8%	30.4%	31.8%	34.0%	29.1%	
	.7				. F							
Table 4. Average Sea	sonal' Use Wir	• Nonconsu iter	mptive[≁] & Spi	Consump ring	<i>tive° (millior</i> Sumr	1s of gallo ner	ns) F	all	Year	ly Avg.		Figure 4. Average Seasonal Consumptive Water Loss, by Use
Use Group	Noncon- sumptive	Consump- tive	Noncon- sumptive	Consump- tive	Noncon- sumptive	Consump- tive	Noncon- sumptive	Consump- tive	Noncon- sumptive	Consump tive	-	200
potable purveyors	76	0	83	6	96 51	34	90	8	345	48	-	> 150
ndustrial & commercial &	27	4	30	4	33	6	36	5	127	19	-	∑ 100 ■ spring
agricultural & non-	0	1	2	18	16	140	3	24	20	182	_	
agricultural irrig.	0	0	0	0	0	0	0	0	0	0	_	
SUM:	144	4	156	31	196	198	171	41	666	273	-	potable domestic industrial & agriculture power
												purveyors wells commercial & & irrigation generation mining
Table 5. Sewage Gen	eration & Tra	ansfers [®] in	the HUC11	(millions	of gallons)	1005	1006	1007	1009	1000	2007200	Figure 5. Average Sewage Gen- Fig 6. Average Treated-Effluent
generated in HUC11	323	318	328	316	394	357	433	427	416	396	371	eration & Iransfers Discharge Location
imported to HUC11 exported from HUC11	127 100	111 110	103 130	111 89	112 140	100 129	124 148	138 156	131 143	117 142	117 129	
Table 6. Destination	of Treated Ef	fluent (Recl	aimed-Wa	ter) Discha	rges [°] in the	HUC11 (n	nillions of	gallons)				
destination fresh water	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	
brackish water	0	0	0	0	0	0	0	0	0	0	0	0 +
salt water	0	0 319	0 301	0	365	0 328	0 409	409	0 404	0 370	0	generated imported exported water water water water

Water Source Water Source MGY 2,880 surface water ground water 3,447 total 6,327 Table 8. 1999 Water Allocations¹⁰ in HUC11 by

Water Use Group	
Use Group	MGY
agricultural	5,189
commercial	105
industrial	124
irrigation	0
mining	0
potable supply	909
power generation	0

Table 9. HUC11 Descriptive Statistics --- Area: in this HUC11 only 49.7 sq. mi. <u>0.0</u> sq. mi. 49.7 sq. mi. upstream HUC11s total watershed (this HUC11 onshore area 48.3 sq. mi.) Population of this HUC11: Year 1940 Population Change 6,184 7,300 18.0% 1950 9.1% 5.0% 1960 7,968 1970 8,366 1980 9,723 16.2% 1990 12,001 23.4% 2000 16,914 40.9%

2010	21,258	25.7%	est.12
2020	26,514	24.7%	est.12
2030	33,195	25.2%	est.12

- Land Use of this HUC11:

Type	Ye	Change						
Type	1986	1995	Change					
ag.	50.7%	43.3%	-7.4%					
barren	1.0%	1.6%	0.6%					
forest	15.6%	16.2%	0.6%					
urban	11.8%	18.1%	6.3%					
water	5.7%	5.7%	0.1%					
wetlands	15.4%	15.1%	-0.3%					
- % of this HUC11 in:								
Pinela	inds:	0.0%						
Highla	ands:	0.0%						

NOTES:

1 Salt and brackish water withdrawal and use is not included in this data.

2 This does not account for water released from onstream reservoirs for downstream intakes.

3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.

4 Nonconsumptive water use refers to water used in the watershed but not evaporated.

5 Consumptive water use refers to water evaporated in the watershed. It does not include exports.

6 Use refers only to water actually used in that HUC11. It is equal to freshwater withdrawals + imports - exports. 7 Winter is Jan, Feb, Dec of the same year; spring is March-May; summer is June-Aug; fall is Sept-Nov.

8 Sewage generation and transfers are based on intersection of sewer service areas with HUC11s.
 9 Based on discharge volumes reported under NJPDES program.

10 The allocated volume is calculated from allocation permits on file with the Bureau of Water Allocation, NJDEP, as of 1999. 11 Import and export volumes based on reported transfers between purveyors and on intersection of purveyor service areas with HUC11s.

12 Projected population estimates based on NJ Metropolitan Planning Organization estimates.

13 Subject to revision.

14 Withdrawals for offstream reservoirs are problematic and complicate Figures 1 and 2.

Key for Discharge Data	Key for Withdrawal Data						Area of Detail
1999 Treated Effluent Dischar	e Source		1999 Withdra	wal	Use Group		LAC
0 - 50 MGY	GW Confined		No 1999 Use	H¢A	Agricultural		1 Dela
50 - 100 MGY	GW Unconfined	\bigcirc	1-50 MGY		Commercial	•	ちまむ
100 - 500 MGY	SW	\bigtriangleup	51 - 100 MGY		Industrial	•	K S A
> 500 MGY			101 - 500 MGY		Irrigation	•	
Other Permitted Discharge	e.				Mining	•	K K K K
			> 500 MGY		Not Classified		
					Potable Supply	•	the start
		MGY	= millions of gallons	per year	Power Generation	•	

WMA:			Low	er Delaw	are			18										
HUC11:			Old	mans Cre	ek			02	20402021	160								
Table 1. Freshwater ¹	Withdrawal	in the HU	C11 (millio	ons of gallo	ons)													
Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average		Fig 1. A	verage Sour	ce of	Fig 2. Avera of Fre	ge Destination sh Water	
Delaware River	0	0	0	0	153	518	454	542	562	505	273	900 -				1		
other sum	298 298	630 630	<u>335</u> 335	383 383	240 394	412 931	183 637	823 1,365	795 1,357	920 1,425	502 775	- 800 - 10 - 100 -						
round-water: 3	207	077	266	270	207	227	262	427	170	206	297	₹600 -						
unconfined	182	193	178	279	180	237	184	247	429	447	252	2 500 - 10 400 -						
sum total withdrawals:	509 806	470	444 780	520 903	487 881	478	447	684 2.049	599 1.956	753 2.178	539 1.315	ja 300 -	H F			4		
		,				,	,	,	,	, -	,	≥ 200 - 100 -						
Table 2. Freshwater I	mports To &	Exports Fr	om the HU	C11 (milli	ons of gallor	is)	0	04	00	04	1 45	0 -	ground			consump-	nonconsump-	exports
exports ¹¹	8 0	9 0	9 0	0	0	10 0	8 0	21 0	33 0	31 4	0		water	surface water	imports	tive (evaporated)	tive (not evaporated)	
net	8	9	9	11	11	10	8	21	33	26	15							
Table 3. Nonconsum	otive⁴ & Cor	sumptive ⁵	Water Use	e ⁶ in the H	UC11, bv Us	e Type (mi	llions of a	allons)										
Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average							
otable purveyors nonconsumptive	7	16	11	12	13	11	10	20	31	29	16	700		Figure 3. C	Consumptive	& Nonconsumpti	ve Use	
consumptive	1	2	1	2	2	2	1	3	4	4	2		\bot					
nonconsumptive	92	93	95	98	101	103	106	110	114	117	103	600	Τ					
consumptive	13 inina	13	13	14	14	15	15	16	16	17	15	оос / Хеа	+					
nonconsumptive	294	241	236	249	412	677	643	880	657	723	501	suoj	+				·	
consumptive aricultural & non-agricultur	33 al irrigation	27	26	28	46	75	71	98	73	80	56	005 a	+			– -		
nonconsumptive	37	72	41	51	31	54	25	94	109	123	64	.0 ₩ 200	+					
consumptive ower generation	337	645	365	462	275	482	222	849	985	1,111	573	100						
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0			_				
SUM:	0	0	0	0	0	0	0	0	0	0	0	0	potable	domesti	c indu	strial & agricul	ure po	ower
nonconsumptive consumptive	430 383	422 687	383 405	410 505	555 336	845 573	783 309	1,105 965	911 1,078	993 1,211	684 645		purveyors	wells	mi	ining & irriga	ion gene	eration
PERCENTAGES:	F2 0%	29.09/	49 69/	44 99/	62.29/	50.6%	71 70/	E2 /0/	AE 99/	4E 10/	E1 49/				nonconsum	ptive consumptive		
consumptive	47.1%	62.0%	48.0% 51.4%	44.8% 55.2%	37.7%	40.4%	28.3%	46.6%	43.8% 54.2%	43.1% 54.9%	48.6%							
Table 4. Average Sea	sonal ⁷ Use	Nonconsu	mptive ⁴ &	Consump	tive ⁵ (millio	ns of gallo	ns)		Voor				Figure	4. Average S	Seasonal Co	nsumptive Water	Loss, by Use	
Use Group	Noncon-	Consump-	Noncon-	Consump-	Noncon-	Consump-	Noncon-	Consump	- Noncon-	Consump		- ⁷⁰⁰				· · · · · · · · · · · · · · · · · · ·		
potable purveyors	sumptive 4	tive 0	sumptive 4	tive 0	sumptive 4	tive 1	sumptive 4	tive 0	sumptive 16	tive 2	-	g 600 + ≿ 500 -						
domestic wells	24	0	24	2	30	10	25	2	103	15	-	se 400 -						- spring
ndustrial & commercial & mining	123	14	115	13	142	16	122	14	501	56		- 005 g						- · summer
agricultural & non-	0	1	6	56	50	449	8	68	64	573		.5 200 - ₩ 100 -						
power generation	0	0	0	0	0	0	0	0	0	0	-	0					,	
SUM:	150	14	149	70	226	477	159	84	684	645			potable	domestic	industria commerci	I & agriculture	power	
												р	urveyors	wells	mining		generation	1
Table 5. Sewage Gen	eration & Tra	nsfers [®] in	the HUC1	1 (<i>millions</i>	of gallons)	1005	1006	1007	1002	1000	averago		Figure 5.	Average Sev	vage Gen-	Fig 6. Avera	e Treated-Effl	uent
generated in HUC11	70	61	56	59	57	51	63	75	70	62	62	70			ansiers	Discha	rge Location	
imported to HUC11 exported from HUC11	0 70	0 61	0 56	0 59	0 57	0 51	0 63	0 75	0 70	0 62	0 62	_{يع} 60	-					
								. 2				× 50 +	-					
												9 ⁴⁰ 1 9 30 −	_					
Table 6. Destination	of Treated En	fluent (Rec	laimed-Wa	ter) Discha	nrges ⁹ in the	HUC11 (m	nillions of	gallons)	1908	1900	average	ji 20	-					
fresh water	0	0	0	0	0	0	0	0	0	0	0	⁻ 10 +	-			<u></u>		
brackish water salt water	0	0	0	0	0	0	0	0	0	0	0	0 +	generated	imported	exported	fresh	brackish	salt
our mator	0	0	0	0	0	0	0	0	0	0	0		in HUC11	imported	caponeu	water	water	water
sum:	0																	

W			
Water Source		MGY	
surface water		4,424	
ground water		4,846	
	total	9,269	_
Table 8 1000 Wate	r Allo	cations ¹⁰ i	HUC11 b

Table 6. 1999 Waler Allocations	шностьу
Water Use Group	
Use Group	MGY
agricultural	7,443
commercial	0
industrial	1,637
irrigation	115
mining	0
potable supply	74
power generation	0

location	#	name
downstream:	02040206020	Pennsville / Penns Grove tribs
upstream:		
(if any)		

2010	7,889	31.5%	est. "*
2020	10,643	34.9%	est.12
2030	13,114	23.2%	est.12

• 1	Land	Use	of	this	нυ	C11	1:	

Type	Ye	ar	Change					
туре	1986	1995	Change					
ag.	53.8%	50.0%	-3.8%					
barren	0.8%	1.1%	0.3%					
forest	14.7%	14.8%	0.1%					
urban	8.7%	12.2%	3.6%					
water	2.3%	2.2%	-0.1%					
wetlands	19.6%	19.6%	0.0%					
% of this HUC11 in:								
Pinela	nds:	0.0%						
Highla	nds:	0.0%						

NOTES:

1 Salt and brackish water withdrawal and use is not included in this data.

2 This does not account for water released from onstream reservoirs for downstream intakes.

3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.

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 9 Based on discharge volumes reported under NJPDES program.

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12 Projected population estimates based on NJ Metropolitan Planning Organization estimates.

13 Subject to revision.

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	Key for Discharge Data			Key for Withdrawal Data							Area of Detail
_1	999 Treated E	ffluent Disch	Source	1999 Withdrawal			Use Group		KAL		
	0 - 50	MGY		GW Confined		No 1999	Use	■●▲	Agricultural	٠	2 Date
	50 - 100	MGY	•	GW Unconfined	\bigcirc	1 - 50	MGY		Commercial	•	ちまた
	100 - 500	MGY	•	SW	\bigtriangleup	51 - 100	MGY		Industrial	•	4557
	> 500	MGY	•			101 - 500	MGY		Irrigation	•	a tra
Other Permitted Discharge 🔹									Mining		KISS Y
		J				> 500	MGY		Not Classified		
									Potable Supply		the formation of the second se
				MGY = millions of gallons per year Power Generation						•	U