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

Appendix 1: HUC11 Tables, Figures and Maps WMA 1 - Upper Delaware







NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION



WMA:			Upp	ber Delaw	are			01									
HUC11:		S	himers B	rook / Clo	ove Brook			02	20401040	090	I						
Table 4 Freedom to 1	1		044 (•						
Withdrawals (Q)	1990	1991	1992	1993	1 994	1995	1996	1997	1998	1999	average	Fig 1.	Average So Fresh Wate	ource of er	Fig 2. Averag	ge Destination sh Water	
Delaware River	r 0	0	0	0	0	0	0	0	0	0	0	100]
sun	n 0	0	0	0	0	0	0	0	0	0	0	- 80 70					
ound-water: [°] confined	0 1	0	0	0	0	0	0	0	0	0	0	x 60 +					
unconfined	d <u>38</u>	95 95	97	114	107	105	95 95	108	88 88	99 99	95 95	9 50 + 9 40 +					
total withdrawals:	38	95	97	114	107	105	95	108	88	99	95	5 30 - W 20 - 10 -				· · · · · · · · · · · · · · · · · · ·	
Table 2. Freshwater	Imports To &	Exports Fr	om the HU	IC11 (millio	ons of gallor	is) 3	2	2	2	2	2	around	surface	imports	consump-	nonconsump-	exports
exports ¹¹	0	0	0	0	0	0	0	0	0	0	0	water	water	impons	tive (evaporated)	tive (not evaporated)	
net	0	2	3	3	3	3	2	2	2	2	2						
Table 3. Nonconsum	nptive ⁴ & Con	sumptive ⁵	Water Us	e ⁶ in the H	UC11, by Us	e Type (mi	illions of g	allons)	1008	1000	avorago						
otable purveyors	1990	1991	1332	1993	1994	1990	1990	1991	1990	1999	average		Figure 3	. Consumptive	& Nonconsumptiv	ve Use	
nonconsumptive consumptive		49 10	54 7	66 12	62 9	59 9	51 7	60 10	43 6	51 8	50 8	70		· · · · · · · · · · · · · · · · · · ·			
omestic wells		22	20	24	34	24	25	- 2F	ЭF	26	24	60 +					
consumptive	e 33	33 5	33 5	34 5	34 5	34 5	35 5	ა5 5	<i>ა</i> 5 5	36 5	34 5	ja 50 +					
dustrial & commercial & r nonconsumptive	mining e 0	0	0	0	0	0	0	0	0	0	0	, sg 40 +					
consumptive	e o	0	õ	0	0	0	0	0	0	0	õ	E 08 0					
ricultural & non-agricultu nonconsumptive	ral irrigation	0	0	0	0	0	0	0	0	0	0	illi 30					
consumptive	e 0	1	0	1	0	1	0	1	1	1	1	2 20					
nonconsumptive	e 0 e 0	0 0	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0					
SUM: nonconsumptive	ə 33	82	88	100	96	93	86	95	79	87	84	potable	dome	estic comme Is mini	rial & agricult	ure po ion gen	ower
consumptive PERCENTAGES:	9 5	16	12	17	14	15	12	16	12	14	13				ing -		
nonconsumptive	86.6%	84.0%	88.0%	85.4%	87.4%	86.0%	87.9%	85.6%	86.9%	86.2%	86.4%			nonconsumpt	ve consumptive		
consumptive	5 13.476	10.078	12.076	14.078	12.076	14.078	12.170	14.470	13.176	13.076	13.078						
Table 4. Average Sea	asonal ⁷ Use Wir	- Nonconsu Iter	Imptive ⁴ & Sp	Consump	tive⁵ (millio Sum	ns of gallo mer	ns) F	all	Year	ly Avg.		Figur	e 4. Averag	e Seasonal Con	sumptive Water	Loss, by Use	
Use Group	Noncon-	Consump-	Noncon-	Consump-	Noncon-	Consump-	Noncon-	Consump	- Noncon-	Consump-		8					
potable purveyors	10	0	10	1	16	6	13	1	50	8	-	$\frac{9}{5}$ 7 + $\frac{7}{6}$ 6 +					- winter
domestic wells	8	0	8	1	10	3	8		34	5	-						- spring
mining	0	0	0	0	0	0	0	0	0	0	-	0					fall
agricultural irrig.	0	0	0	0	0	0	0	0	0	1	_						
power generation SUM:	0 17	0	0 19	0	0 26	0 10	0 22	0	0 84	0 13	-	0 +		in durated of			
							1		1			potable purveyors	domestic wells	commercial mining	 agriculture & & irrigation 	power generation	ı
Table 5 Sowage Cou	noration & Tr	anoforo ⁸ in	the HUC1	1 (millions	of gallons)							5		a			
Table 5. Sewage Ger	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Figure 5.	eration & 1	ewage Gen- ransfers	Fig 6. Averag Discha	e Treated-Effi	uent
generated in HUC11 imported to HUC11	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	1]
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0						
Table 6 Destination	of Treated E	fluent (Peo	laimod-Wa	ter) Discha	arnes ⁹ in the	HUC11 (n	nillions of	dallone)									
destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	¥ 0 +					
fresh water brackish water	0	0	0	0	0	0	0	0 0	0	0 0	0	0			<u> </u>		
	Ő	0	0	0	0	0	0	0	0	0	0	generated	imported	exported	fresh water	brackish water	salt water
salt water	-	~	~	0	0	0	0	0	0	0	. 0	in HUC11					and Children in

7. 1999 Water Alloc Water St	Table 9. HUC11 Descriptive	Table 9. HUC11 Descriptive Stati			
Water Source	MGY	Area:			
surface water	0	in this HUC11 only 22.8	S		
ground water	101	upstream HUC11s 0.0	S		
total	101	total watershed 22.8	s		
		(this HUC11 onshore area: 22.3	s		
e 8. 1999 Water Alloc Water Use	ations ¹⁰ in HUC11 by	Population of this HUC11:			
Use Group	MGY	Year Population Change			
agricultural	0	1940 305 -	Э		
commercial	0	1950 296 -3.1%	9		
	0	1060 432 46.0%	<u>)</u>		
industrial	0	1500 452 40.076	<u>)</u>		
industrial irrigation	0 0 37	1970 556 28.7%	<u>)</u>		
industrial irrigation mining	0 0 37 0	1970 556 28.7% 1980 1,015 82.7%	<u>e</u>		
industrial irrigation mining potable supply	0 0 37 0 64	1900 432 40.07 1970 556 28.7% 1980 1,015 82.7% 1990 1,391 37.1%	9		
industrial irrigation mining potable supply power generation	0 0 37 0 64 0	1900 432 46.0% 1970 556 28.7% 1980 1,015 82.7% 1990 1,391 37.1% 2000 1,676 20.5%	<u>ə</u>		

location	#	name
downstream:	02040104110	Walpack Bend / Montague Riverfront
(if any)		
upstream:		
(if any)		

1940	305	-									
1950	296	-3.1%									
1960	432	46.0%									
1970	556	28.7%									
1980	1,015	82.7%									
1990	1,391	37.1%									
2000	1,676	20.5%									
2010	1,960	16.9%	est.12								
2020	2,357	20.3%	est.12								
2030	2,716	15.2%	est.12								
Land Use	Land Use of this HUC11:										

- Land Use of this HUC11:										
Typo	Ye	Change								
туре	1986	1995	Change							
ag.	7.4%	7.3%	-0.2%							
barren	0.2%	0.3%	0.1%							
forest	68.7%	67.2%	-1.4%							
urban	6.7%	8.2%	1.5%							
water	4.7%	4.3%	-0.4%							
wetlands	12.3%	12.7%	0.4%							
- % 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.

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		Area of Detail		
1999 Treated Effluent Discharge	Source	1999 Withdrawal	Use Group	LA
0 - 50 MGY 🔸	GW Confined	No 1999 Use ■●▲	Agricultural 😑	1 FLA
50 - 100 MGY 🔶	GW Unconfined \bigcirc	1-50 MGY ■●▲	Commercial 🛛 🔴	543E
100 - 500 MGY 🔶	SW $ riangle$	51-100 MGY ■●▲	Industrial 🛛 😑	1 45/7
> 500 MGY 🔶		101 - 500 MGY	Irrigation 🧡 🔴	a tra
Other Permitted Discharge 🖕			Mining 📃 🔵	CH SI
		> 500 MGY	Not Classified 📃 🌑	
	- 0		Potable Supply 📃 🔵	the start
	MG			

Intern Value Participant Part 1 Part 2 Par	WMA:			Upp	ber Delaw	are			01										
The first of the series of the seri	10000		Walnack Bond / Montague Riverfront																
Table 1 Forbact Table 1 for 1/0000 Table 1 for 1/00000 Table 1 for 1/0000 Table 1 f	HUC11:	HUC11: Walpack Bend / Montague Riverfront				02	20401041	10											
Contraction	Table 1. Freshwater ¹ Withdrawals (Q)	¹ Withdrawal 1990	s in the HU 1991	C11 (millio 1992	ons of gallo 1993	o ns) 1994	1995	1996	1997	1998	1999	average		Fig 1. A	verage Sour	ce of	Fig 2. Averag	je Destinatio	n
$\frac{ \mathbf{r} ^{\mathbf{r}} \mathbf{r} ^{\mathbf{r}}}{ \mathbf{r} ^{\mathbf{r}}} = \frac{ \mathbf{r} ^{\mathbf{r}}}{ \mathbf{r} ^{\mathbf{r}}}} = \frac{ \mathbf{r} ^{\mathbf{r}}}{ \mathbf{r} ^{\mathbf{r}}} = \frac{ \mathbf{r} ^{\mathbf{r}}}{ \mathbf{r} ^$	Irface water: ² Delaware River	r O	0	0	0	0	0	0	0	0	0	0	²⁵ T.		Testi Waler			Si Water	
$\frac{\operatorname{Surveyers}^{(n)}}{\operatorname{Surveyers}^{(n)}} = \frac{\operatorname{Surveyers}^{(n)}}{\operatorname{Surveyers}^{(n)}} = \frac{\operatorname{Surveyers}^{(n)}}}{\operatorname{Surveyers}^{(n)}} = \frac{\operatorname{Surveyers}^{(n)$	other sum	r 0	0	0	0	0	0	0	0	0	0	0	ہے 20 –						
$\frac{\operatorname{cutres}}{\operatorname{real}} = \frac{3}{2} + $	ound-water: 3	ч - л .											e>						
$ \frac{1}{1000^{10} (11/2)} = \frac{1}{20} + \frac{1}{$	confined	0	0 23	0 23	0 24	0 24	0 24	0 24	0 24	0 24	0 24	0 23	allons						
Note information 3	sum	n 20	23	23	24	24	24	24	24	24	24	23	ບັ ₁₀ -	-					
Table 2. Exponse from the HCC11 (politions of gallons) Table 2. Exponse from the HCC11 (politions of gallons) Table 2. According the 2. Consumptive 3. Consumptive 4. Consumptive 4. Consumptive 4. Consumptive 3. Consumptive 4. Consumptis Consumptis Consumptive 4. Consumptive 4. Consumptis Co	total withdrawals:	20	23	23	24	24	24	24	24	24	24	23	₩ ₅	÷				-	
end 0 2 3 3 2	Table 2. Freshwater I imports ¹¹	Imports To &	• Exports Fi 0	om the HL	IC11 (millio 0	ons of gallo	ns) 0	0	0	0	0	0	0	ground	surface	imports	consump-	nonconsump-	exports
Image:	exports ¹¹	0	2	3	3	3	3	2	2	2	2	2		water	water	1	tive (evaporated)	tive (not evaporated)	
Table 1. Anonconsumptive ¹ View Ute ¹ true HUC11 (pullions of gallows) Water use Table 1. Seconsumptive ² View Ute ¹ true HUC11 (pullions of gallows) Water use Table 1. Seconsumptive ² View Ute ¹ true HUC11 (pullions of gallows) Water use 0 0 0 0 0 0 0 0 main purportion (consumptive) 18 <	Tiet	0	(2)	(3)	(3)	(3)	(3)	(2)	(2)	(2)	(2)	(2)							
Bale Autoprint Introduction metric introduction interconcerption and concerning the december of the metric interconcerption interconcerp	Table 3. Nonconsum	ptive ⁴ & Cor 1990	15000000000000000000000000000000000000	Water Us	e ⁶ in the H	UC11, by Us	se Type (mi 1995	illions of g	i allons) 1997	1998	1999	average							
Inconsumptive 0 <	table purveyors														Figure 3.	Consumptive	& Nonconsumptiv	ve Use	
Instrument Image:	nonconsumptive		0	0	0	0	0	0	0	0	0	0	²⁵ T			·	· · · · · ·		
memorysempties 16 <td>mestic wells</td> <td></td> <td>0</td> <td>0</td> <td>U</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	mestic wells		0	0	U	0	0	0	0	0	0	0							
Justice S. Serving Processing 1 2 3 <t< td=""><td>nonconsumptive</td><td>18</td><td>18</td><td>18</td><td>18</td><td>18</td><td>18</td><td>19</td><td>19</td><td>19</td><td>19</td><td>18</td><td>20 -</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	nonconsumptive	18	18	18	18	18	18	19	19	19	19	18	20 -						
Construction Construction<	consumptive	e 2 ninina	3	3	3	3	3	3	3	3	3	3	, Ye						
cosumpted model 0	nonconsumptive	0	0	0	0	0	0	0	0	0	0	0	suoj						
Consumption Consumption <thconsumption< th=""> <thconsumption< th=""></thconsumption<></thconsumption<>	consumptive	e 0	0	0	0	0	0	0	0	0	0	0	e Gal						
consumptive memory 0	nonconsumptive		0	0	0	0	0	0	0	0	0	0	llion						
marging 0 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>•</td> <td>0</td> <td>0</td> <td></td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								-	•	0	0		2						
Onsemptive 0	consumptive	9 0	0	0	0	0	0	0	0	0	0	0	5 -						
SMM: noncommittive consumptive consumptive presented 18 18 18 18 19 19 19 18 18 Consumptive consumptive consumptive presented 2 3	consumptive wer generation		0	0	0	0	0	0	0	0	0	0	5 -						
consumptive 2 3 <th< td=""><td>consumptive wer generation nonconsumptive consumptive</td><td>9 0 9 0 9 0</td><td>0 0 0</td><td>0 0 0</td><td>0 0 0</td><td>0 0 0</td><td>0 0 0</td><td>0 0 0</td><td>0 0 0</td><td>0</td><td>0</td><td>0</td><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	consumptive wer generation nonconsumptive consumptive	9 0 9 0 9 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0	0	0	5						
Immonocossumptive 07.7% <td>consumptive wer generation nonconsumptive consumptive SUM: nonconsumptive</td> <td>0 0 0 0 18</td> <td>0 0 0 18</td> <td>0 0 0 18</td> <td>0 0 0 18</td> <td>0 0 0 18</td> <td>0 0 0 18</td> <td>0 0 0 19</td> <td>0 0 0 19</td> <td>0 0 19</td> <td>0 0 19</td> <td>0 0 0 18</td> <td>5 - 0 -</td> <td>potable purveyors</td> <td> domest</td> <td>indus ic commu</td> <td>strial & agricult ercial & agricult</td> <td>ure ge</td> <td>power</td>	consumptive wer generation nonconsumptive consumptive SUM: nonconsumptive	0 0 0 0 18	0 0 0 18	0 0 0 18	0 0 0 18	0 0 0 18	0 0 0 18	0 0 0 19	0 0 0 19	0 0 19	0 0 19	0 0 0 18	5 - 0 -	potable purveyors	domest	indus ic commu	strial & agricult ercial & agricult	ure ge	power
consumptive 12.3%	consumptive wer generation nonconsumptive consumptive SUM: nonconsumptive consumptive PERCENTAGES:	0 0 0 18 2	0 0 0 18 3	0 0 18 3	0 0 0 18 3	0 0 0 18 3	0 0 0 18 3	0 0 0 19 3	0 0 19 3	0 0 19 3	0 0 19 3	0 0 18 3	5 -	potable purveyors	 domest wells	ic indus ic comm mir	strial & agricult ercial & agricult ning & irrigat	ure tion ge	power neration
Table 4. Average Seasonal? Use - Nonconsumptive ⁴ & Consumptive ⁶ (millions of gallons) Use Group Noncon- Consump- sumptive Noncon- consump- sumptive Noncon- sumptive Noncon- sumptive Noncon- sumptive Noncon- consump- sumptive Noncon- sumptive Noncon- sumptive Noncon- sumptive Noncon- consump- sumptive Noncon- sumptive Nonco	consumptive wer generation nonconsumptive consumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive	0 0 0 18 2 87.7%	0 0 18 3 87.7%	0 0 18 3 87.7%	0 0 18 3 87.7%	0 0 18 3 87.7%	0 0 18 3 87.7%	0 0 19 3 87.7%	0 0 19 3 87.7%	0 0 19 3 87.7%	0 0 19 3 87.6%	0 0 18 3 87.7%	5 -	potable purveyors	domest wells	ic indus comm mir nonconsump	strial & agricult ercial & agricult ning & irrigat	ure ge	power neration
Use Group Winter Spring sumptive Summer Fail Yearly Arg. Use Group Noncon- Consump- sumptive Noncon- 0 Nonc	consumptive wer generation nonconsumptive consumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive	 0 0 0 18 2 87.7% 12.3% 	0 0 18 3 87.7% 12.3%	0 0 18 3 87.7% 12.3%	0 0 18 3 87.7% 12.3%	0 0 18 3 87.7% 12.3%	0 0 18 3 87.7% 12.3%	0 0 19 3 87.7% 12.3%	0 0 19 3 87.7% 12.3%	0 0 19 3 87.7% 12.3%	0 0 19 3 87.6% 12.4%	0 0 18 3 87.7% 12.3%	5 - 0 -	potable purveyors	 domest wells	ic indus comm mir nonconsump	strial & ercial &gricult ning & irrigat stive consumptive	ure ge	power neration
sumple tive sumplive tive summi summi summi	consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive consumptive	 0 0 0 18 2 87.7% 12.3% assonal⁷ Use 	0 0 18 3 87.7% 12.3%	0 0 18 3 87.7% 12.3%	0 0 18 3 87.7% 12.3%	0 0 18 3 87.7% 12.3% tive ⁵ (millio	0 0 18 3 87.7% 12.3%	0 0 19 3 87.7% 12.3%	0 0 19 3 87.7% 12.3%	0 0 19 3 87.7% 12.3%	0 0 19 3 87.6% 12.4%	0 0 18 3 87.7% 12.3%	5 - 0 -	potable purveyors	domest wells	ic comm mir nonconsump	strial & ercial & ning & irrigat nitive consumptive	ure ji iion ge	power neration
potable purveyors 0	consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group	a) 0 a) 0 b) 18 c) 2 c) 12 c) 12 c	0 0 18 3 87.7% 12.3% - Nonconsu iter Consump-	0 0 18 3 87.7% 12.3%	0 0 18 3 87.7% 12.3%	0 0 18 3 87.7% 12.3% tive ⁵ (millio Sum Noncon-	0 0 18 3 87.7% 12.3%	0 0 19 3 87.7% 12.3%	0 0 19 3 87.7% 12.3% all Consump	0 0 19 3 87.7% 12.3% Year	0 0 19 3 87.6% 12.4%	0 0 18 3 87.7% 12.3%	5 - 0 +	potable purveyors Figure	domest wells	ic indus comm mir nonconsump Seasonal Co	strial & agricult ercial & agricult ning & irrigat stive consumptive	ure ge	power neration
dustrial & commercial & 0	consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group	a) 0 a) 0 b) 0 c) 0 c) 18 c) 2 c) 12 c)	0 0 18 3 87.7% 12.3% - Nonconsu iter Consump- tive	0 0 18 3 87.7% 12.3%	0 0 18 3 87.7% 12.3%	0 0 18 3 87.7% 12.3% tive ⁵ (millio Sum Noncon- sumptive	0 0 18 3 87.7% 12.3% Dons of gallo mer Consump- tive	0 0 19 3 87.7% 12.3%	0 0 19 3 87.7% 12.3% all Consump tive	0 0 19 3 87.7% 12.3% Year Noncon- sumptive	0 0 19 3 87.6% 12.4% y Avg. Consump- tive	0 0 18 3 87.7% 12.3%	5 - 0 +	potable purveyors Figure	domest wells	ic indus comm mir anonconsump Seasonal Co	strial & agricult ercial & agricult ning & irrigat stive consumptive	ure ge	power neration
mining agricultural knon- agricultural knon- generation 0	consumptive wer generation nonconsumptive consumptive SUM: nonconsumptive PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group potable purveyors domestic wells	0 0 0 0 0 0 0 18 2 2 87.7% 12.3% 0 0 0 0 4	0 0 18 3 87.7% 12.3% - Nonconsu tter Consump- tive 0 0	0 0 18 3 87.7% 12.3% <i>Imptive ⁴ 8</i> Sp Noncon- sumptive 0 4	0 0 18 3 87.7% 12.3% 2 Consump tring Consump- tive 0 0	0 0 18 3 87.7% 12.3% tive ⁵ (millio Sum Noncon- sumptive 0 5	0 0 18 3 87.7% 12.3% 0 0 0 0 0 0 0 2	0 0 19 3 87.7% 12.3%	0 0 19 3 87.7% 12.3% all Consump tive 0 0	0 0 19 3 87.7% 12.3% Year Noncon- sumptive 0 18	0 0 19 3 87.6% 12.4% V Avg. Consump- tive 0 3	0 0 18 3 87.7% 12.3%	5 - 0 -	potable purveyors Figure	domest wells	ic indus comm min nonconsump Seasonal Co	strial & agricult ercial & agricult ning & irrigat stive consumptive	ure ge	power neration
agricultural irrig. 0	consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Consumptive Use Group potable purveyors domestic wells	 0 0 0 0 18 2 87.7% 12.3% asonal ⁷ Use Wir Noncon-sumptive 0 4 0 	0 0 18 3 87.7% 12.3% - Nonconsu tter Consump- tive 0 0 0	0 0 0 18 3 87.7% 12.3% <i>imptive⁴ 8</i> Sp Noncon- sumptive 0 4	0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0	0 0 18 3 87.7% 12.3% tive ⁵ (millio Sum Noncon- sumptive 0 5 0	0 0 18 3 87.7% 12.3% 0 0 0 0 0	0 0 19 3 87.7% 12.3%	0 0 0 19 3 87.7% 12.3% all Consump tive 0 0 0	0 0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 8 0	0 0 19 3 87.6% 12.4% y Avg. Consump- tive 0 3 0	0 0 18 3 87.7% 12.3%	5 - 0 - 3 3 2 2 2 2	potable purveyors Figure		ic indus comm min nonconsump Seasonal Co	strial & agricult ercial & agricult ning & irrigat stive consumptive	ure ge	power neration winter spring summe
power generation 0	consumptive nonconsumptive SUM: nonconsumptive SUM: nonconsumptive PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group potable purveyors domestic wells ndustrial & commercial & mining acricultural & non-	0 0 0 0 0 0 0 0 18 2 87.7% 12.3% asonal ⁷ Use Wir Noncon- sumptive 0 0 4 0	0 0 18 3 87.7% 12.3% • Nonconsu hter Consump- tive 0 0 0	0 0 18 3 87.7% 12.3% Imptive ⁴ & Sp Noncon- sumptive 0 4 4	0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0	0 0 18 3 87.7% 12.3% tive ⁵ (millio Sum Noncon- sumptive 0 5 0	0 0 18 3 87.7% 12.3% 0 0 0 2 0	0 0 19 3 87.7% 12.3%	0 0 19 3 87.7% 12.3% all Consump tive 0 0 0	0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0	0 0 19 3 87.6% 12.4% V Avg. Consump- tive 0 3 0	0 0 18 3 87.7% 12.3%	5 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	potable purveyors Figure		ic indus comm mir nonconsump Seasonal Co	strial & agricult ercial & agricult ning & irrigat nitive consumptive	ure ge	power neration
Table 5. Sewage Generation & Transfers ⁴ in the HUC11 (millions of gallons) Figure 5. Average Sewage Generation & Transfers ⁴ in the HUC11 (millions of gallons) generated in HUC11 0	consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group potable purveyors domestic wells idustrial & commercial & mining agricultural & non- agricultural irrig.	 0 0 0 0 18 2 87.7% 12.3% asonal ⁷ Use Wir Noncon- sumptive 0 4 0 0	0 0 18 3 87.7% 12.3% - Nonconsu nter Consump- tive 0 0 0	0 0 18 3 87.7% 12.3% Imptive ⁴ & Sp Noncon- sumptive 0 4 0	0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 0	0 0 18 3 87.7% 12.3% tive ⁵ (millio Sum Noncon- sumptive 0 5 0 0 0	0 0 18 3 87.7% 12.3% 0 mer Consump- tive 0 2 0 0	0 0 19 3 87.7% 12.3% INS) F Noncon- sumptive 0 4 0	0 0 19 3 87.7% 12.3% all Consump tive 0 0 0 0	0 0 19 3 87.7% 12.3% Vear - Noncon- sumptive 0 18 0 0	0 0 19 3 87.6% 12.4% V Avg. Consump- tive 0 3 0 0 0	0 0 0 18 3 87.7% 12.3%		potable purveyors Figure		ic indus comm mir nonconsump Seasonal Co	strial & agricult ercial & agricult ning & irrigat stive consumptive	ure ge	power neration
Table 5. Sewage Generation & Transfers ^e in the HUC11 (millions of gallons) generated in HUC11 0 <th>consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural & non-</th> <th> 0 0 0 0 18 2 87.7% 12.3% asonal⁷ Use Wir Noncon-sumptive 0 4 0 0 4 </th> <th>0 0 18 3 87.7% 12.3% - Nonconsump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0</th> <th>0 0 18 3 87.7% 12.3% <i>Imptive ⁴ &</i> Sr Noncon- sumptive 0 4 0 0 4</th> <th>0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 0 0 0</th> <th>0 0 18 3 87.7% 12.3% rtive⁵ (millio Sum Noncon- sumptive 0 5 0 0 0 5 0 0 5</th> <th>0 0 18 3 87.7% 12.3% 0 mer Consump- tive 0 2 0 0 0 0 0 0 0 0 0 0</th> <th>0 0 0 19 3 87.7% 12.3% 77% 12.3% 77% 12.3% 70% 70% 70% 70% 70% 70% 70% 70% 70% 70</th> <th>0 0 19 3 87.7% 12.3% all Consump tive 0 0 0 0 0 0 0</th> <th>0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 18</th> <th>0 0 19 3 87.6% 12.4% Vog. Consump- tive 0 3 0 0 0 0 0 0 3</th> <th>0 0 18 3 87.7% 12.3%</th> <th>3 0 - 1 0 - 1 - 2 - - 2 - - 1 - - 2 - - 0 -</th> <th>potable purveyors Figure</th> <th>• 4. Average</th> <th>ic indus comm mir nonconsump</th> <th>strial & agricult ercial & agricult ning & irrigat stive consumptive nsumptive Water</th> <th>ure ge</th> <th>power neration </th>	consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural & non-	 0 0 0 0 18 2 87.7% 12.3% asonal ⁷ Use Wir Noncon-sumptive 0 4 0 0 4 	0 0 18 3 87.7% 12.3% - Nonconsump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 18 3 87.7% 12.3% <i>Imptive ⁴ &</i> Sr Noncon- sumptive 0 4 0 0 4	0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 0 0 0	0 0 18 3 87.7% 12.3% rtive ⁵ (millio Sum Noncon- sumptive 0 5 0 0 0 5 0 0 5	0 0 18 3 87.7% 12.3% 0 mer Consump- tive 0 2 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% 77% 12.3% 77% 12.3% 70% 70% 70% 70% 70% 70% 70% 70% 70% 70	0 0 19 3 87.7% 12.3% all Consump tive 0 0 0 0 0 0 0	0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 18	0 0 19 3 87.6% 12.4% Vog. Consump- tive 0 3 0 0 0 0 0 0 3	0 0 18 3 87.7% 12.3%	3 0 - 1 0 - 1 - 2 - - 2 - - 1 - - 2 - - 0 -	potable purveyors Figure	• 4. Average	ic indus comm mir nonconsump	strial & agricult ercial & agricult ning & irrigat stive consumptive nsumptive Water	ure ge	power neration
Table 6. Destination 1990 1991 1992 1993 1995 1996 1997 1998 1999 average eration & Transfers Prigits 3. Average dem eration & Transfers Table 6. Destination 1992 <td< td=""><td>consumptive ower generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Consumptive Consumptive Use Group potable purveyors domestic wells ndustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:</td><td>a) 0 a) 0 b) 0 a) 18 b) 2 b) 12.3% asonal⁷ Use win Noncon- sumptive 0 4 0 0 0 0 0 0 0 0</td><td>0 0 18 3 87.7% 12.3% - Nonconsu nter Consump- tive 0 0 0 0 0 0</td><td>0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ &</i> Sp. Noncon sumptive 0 4 0 4 0 0 4</td><td>0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 0</td><td>0 0 18 3 87.7% 12.3% trive⁵ (millio Sum Noncon- sumptive 0 5 0 0 0 0 5</td><td>0 0 0 18 3 87.7% 12.3% nmer Consump- tive 0 2 0 0 0 0 0 2</td><td>0 0 0 19 3 87.7% 12.3% ITS) F Noncon- sumptive 0 4 0 0 0 0 0 4</td><td>0 0 0 19 3 87.7% 12.3% all Consump tive 0 0 0 0 0 0 0 0</td><td>0 0 0 19 3 87.7% 12.3% Noncon- sumptive 0 18 0 0 0 0 18</td><td>0 0 0 19 3 87.6% 12.4% Consump- tive 0 3 0 0 0 0 0 3</td><td>0 0 18 3 87.7% 12.3%</td><td>5 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -</td><td>potable purveyors Figure</td><td>e 4. Average</td><td>ic indus comm mir e nonconsump Seasonal Co industrial commercia mining</td><td>strial & agricult ercial & agricult stive consumptive nsumptive Water</td><td>ure ge</td><td>power neration </td></td<>	consumptive ower generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Consumptive Consumptive Use Group potable purveyors domestic wells ndustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:	a) 0 a) 0 b) 0 a) 18 b) 2 b) 12.3% asonal ⁷ Use win Noncon- sumptive 0 4 0 0 0 0 0 0 0 0	0 0 18 3 87.7% 12.3% - Nonconsu nter Consump- tive 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ &</i> Sp. Noncon sumptive 0 4 0 4 0 0 4	0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 0	0 0 18 3 87.7% 12.3% trive ⁵ (millio Sum Noncon- sumptive 0 5 0 0 0 0 5	0 0 0 18 3 87.7% 12.3% nmer Consump- tive 0 2 0 0 0 0 0 2	0 0 0 19 3 87.7% 12.3% ITS) F Noncon- sumptive 0 4 0 0 0 0 0 4	0 0 0 19 3 87.7% 12.3% all Consump tive 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Noncon- sumptive 0 18 0 0 0 0 18	0 0 0 19 3 87.6% 12.4% Consump- tive 0 3 0 0 0 0 0 3	0 0 18 3 87.7% 12.3%	5 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	potable purveyors Figure	e 4. Average	ic indus comm mir e nonconsump Seasonal Co industrial commercia mining	strial & agricult ercial & agricult stive consumptive nsumptive Water	ure ge	power neration
generated in HUC11 0	consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Consumptive Consumptive Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural i mon- agricultural i mon- agricultural i mon- sUM: SUM:	0 0 0 0 18 2 87.7% 12.3% asonal ⁷ Use Wir Noncon-sumptive 0 0 4 0 0 4 0 0 0 4 4	0 0 18 3 87.7% 12.3% - Nonconsu nter Consump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% Imptive ⁴ & Sp Noncon- sumptive 0 4 0 0 4 0 0 0 4 0 0 4 0 0 0 4	0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 18 3 87.7% 12.3% tive ⁵ (millio Sum Noncon- sumptive 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 0 0 0 0 0 0 0 0 0 2	0 0 0 19 3 87.7% 12.3% ITS) F Noncon- sumptive 0 4 0 0 0 0 4	0 0 0 19 3 87.7% 12.3% 12.3% 12.3% 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 0 0 18	0 0 0 19 3 87.6% 12.4% V Avg. Consump- tive 0 3 0 0 0 0 0 3	0 0 18 3 87.7% 12.3%	5 - 0 - 0 - 0 - 1 1 1 0 1 0	potable purveyors Figure	e 4. Average	ic indus comm min enonconsump Seasonal Co Seasonal Co industrial commercia mining	strial & agricult ercial & agricult stive consumptive nsumptive Water 	Loss, by Use	power neration
constraint constraint <thconstraint< th=""> constraint constraint<td>consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Consumptive Table 4. Average Sea Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:</td><td> 0 0 0 0 18 2 87.7% 12.3% asonal⁷ Use wir Noncon-sumptive 0 4 0 0 4 0 0 4 12.3% asonal⁷ Use wir Noncon-sumptive 0 4 4 0 0 4 1990</td><td>0 0 18 3 87.7% 12.3% - Nonconsump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ & S</i>F Noncon- sumptive 0 4 0 0 4 0 0 0 4 0 0 0 0 4 <i>the HUC1</i> 1992</td><td>0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 1 0 1 0 1 1 1993</td><td>0 0 18 3 87.7% 12.3% ntive⁵ (millio Sum Noncon- sumptive 0 5 0 0 0 0 0 5 0 0 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 0 5 5 0 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>0 0 0 18 3 87.7% 12.3% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>0 0 0 19 3 87.7% 12.3% Ins) F Noncon- sumptive 0 4 0 0 0 0 4 1996</td><td>0 0 0 19 3 87.7% 12.3% 12.3% 12.3% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>0 0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 0 0 18 0 0 18</td><td>0 0 0 19 3 87.6% 12.4% V Avg. Consump- tive 0 3 0 0 0 0 0 0 3 1999</td><td>0 0 18 3 87.7% 12.3%</td><td>5 - 0 0</td><td>potable purveyors Figure </td><td>domest wells</td><td>ic indus comm min seasonal Co Seasonal Co industrial commercia mining</td><td>strial & agricult ercial & agricult stive consumptive nsumptive Water </td><td>ure generation</td><td>power neration </td></thconstraint<>	consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Consumptive Table 4. Average Sea Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM:	 0 0 0 0 18 2 87.7% 12.3% asonal ⁷ Use wir Noncon-sumptive 0 4 0 0 4 0 0 4 12.3% asonal ⁷ Use wir Noncon-sumptive 0 4 4 0 0 4 1990	0 0 18 3 87.7% 12.3% - Nonconsump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ & S</i> F Noncon- sumptive 0 4 0 0 4 0 0 0 4 0 0 0 0 4 <i>the HUC1</i> 1992	0 0 18 3 87.7% 12.3% 2 Consump - tive 0 0 0 0 0 0 1 0 1 0 1 1 1993	0 0 18 3 87.7% 12.3% ntive ⁵ (millio Sum Noncon- sumptive 0 5 0 0 0 0 0 5 0 0 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 0 5 5 0 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Ins) F Noncon- sumptive 0 4 0 0 0 0 4 1996	0 0 0 19 3 87.7% 12.3% 12.3% 12.3% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 0 0 18 0 0 18	0 0 0 19 3 87.6% 12.4% V Avg. Consump- tive 0 3 0 0 0 0 0 0 3 1999	0 0 18 3 87.7% 12.3%	5 - 0 0	potable purveyors Figure 	domest wells	ic indus comm min seasonal Co Seasonal Co industrial commercia mining	strial & agricult ercial & agricult stive consumptive nsumptive Water 	ure generation	power neration
Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges ⁹ in the HUC11 (millions of gallons) destination 1990 1991 1992 1993 1994 1995 1996 1999 average fresh water 0 0 0 0 0 0 0 0 0 0 salt water 0 0 0 0 0 0 0 0 0 sum: 0 0 0 0 0 0 0 0 0 0	consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Consumptive Table 4. Average Sea Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural i ming agricultural i non- agricultural i non- agricultural i mon- SUM: SUM:	 0 0 0 0 18 2 87.7% 12.3% asonal ⁷ Use wir Noncon-sumptive 0 4 o 0 0 0 0 teration & Training of the second s	0 0 18 3 87.7% 12.3% - Nonconsump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ 2</i> Sr Noncon- sumptive 0 4 0 0 4 0 0 0 4 0 0 0 0 4 0 0 0 0 0	0 0 18 3 87.7% 12.3% 2 Consump - tive 0 0 0 0 0 0 0 1 (millions 1993 0 0 0 0	0 0 18 3 87.7% 12.3% trive ⁵ (millic Sum Noncon- sumptive 0 5 0 0 0 0 0 5 0 0 0 0 0 5 5 0 0 0 0 0 5 5 0 0 0 0 5 5 0 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 0 5 5 0 0 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Ins) F Noncon- sumptive 0 4 0 0 0 4 0 0 1996 0 0 0 0	0 0 0 19 3 87.7% 12.3% 12.3% all Consump tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 0 18 0 0 18 19 18 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.6% 12.4% V Avg. Consump- tive 0 3 0 0 0 0 0 0 3 1999 0 0	0 0 18 3 87.7% 12.3%	5 - 0	potable purveyors Figure 	domest wells	ic indus comm mit nonconsump Seasonal Co Seasonal Co industrial commercia mining	strial & agricult ercial & agricult bitive consumptive nsumptive Water a agriculture a agriculture a fig 6. Average Discha	ure generation ge	power neration
Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges ⁹ in the HUC11 (millions of gallons) destination 1990 1991 1992 1993 1995 1996 1997 1998 1999 average fresh water 0 0 0 0 0 0 0 0 0 0 salt water 0 0 0 0 0 0 0 0 0 0 sum: 0 <td>consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Consumptive Consumptive Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM: Table 5. Sewage Gen generated in HUC11 exported from HUC11</td> <td> 0 0 0 0 18 2 87.7% 12.3% asonal⁷ Use wir Noncon-sumptive 0 4 neration & Training 0 0 0 0 </td> <td>0 0 18 3 87.7% 12.3% - Nonconsump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ & Sr</i> Noncon- sumptive 0 4 0 0 4 0 0 0 0 4 <i>the HUC1</i> 1992 0 0 0</td> <td>0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 0 1 (millions 1993 0 0 0 0</td> <td>0 0 18 3 87.7% 12.3% Noncon- sumptive 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 18 3 87.7% 12.3% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 19 3 87.7% 12.3% nrs) F Noncon- sumptive 0 4 0 0 0 4 0 0 4 0 0 0 4 0 0 0 0 0 0</td> <td>0 0 0 19 3 87.7% 12.3% 12.3% 12.3% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 19 3 87.7% 12.3% 12.3% 12.3% 0 18 0 0 0 0 18 0 0 0 18 0 0 0 18</td> <td>0 0 0 19 3 87.6% 12.4% V Avg. Consump- tive 0 3 0 0 0 0 0 0 0 3 19999 0 0 0 0 0</td> <td>0 0 18 3 87.7% 12.3%</td> <td>5 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -</td> <td>potable purveyors Figure -</td> <td>domest wells</td> <td>ic indus comm mit seasonal Co Seasonal Co industrial commercia mining vage Gen- ansfers</td> <td>strial & agricult ercial & agricult bitive consumptive nsumptive Water a agriculture a agriculture bitive fig 6. Average Discha</td> <td>ure generati</td> <td>power neration </td>	consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Consumptive Consumptive Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM: Table 5. Sewage Gen generated in HUC11 exported from HUC11	 0 0 0 0 18 2 87.7% 12.3% asonal ⁷ Use wir Noncon-sumptive 0 4 neration & Training 0 0 0 0 	0 0 18 3 87.7% 12.3% - Nonconsump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ & Sr</i> Noncon- sumptive 0 4 0 0 4 0 0 0 0 4 <i>the HUC1</i> 1992 0 0 0	0 0 18 3 87.7% 12.3% 2 Consump - tive 0 0 0 0 0 0 0 1 (millions 1993 0 0 0 0	0 0 18 3 87.7% 12.3% Noncon- sumptive 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% nrs) F Noncon- sumptive 0 4 0 0 0 4 0 0 4 0 0 0 4 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% 12.3% 12.3% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% 12.3% 12.3% 0 18 0 0 0 0 18 0 0 0 18 0 0 0 18	0 0 0 19 3 87.6% 12.4% V Avg. Consump- tive 0 3 0 0 0 0 0 0 0 3 19999 0 0 0 0 0	0 0 18 3 87.7% 12.3%	5 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	potable purveyors Figure -	domest wells	ic indus comm mit seasonal Co Seasonal Co industrial commercia mining vage Gen- ansfers	strial & agricult ercial & agricult bitive consumptive nsumptive Water a agriculture a agriculture bitive fig 6. Average Discha	ure generati	power neration
destination 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 average fresh water 0	consumptive wer generation nonconsumptive SUM: nonconsumptive consumptive PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural irrig. power generation SUM: Table 5. Sewage Ger generated in HUC11 imported to HUC11 exported from HUC11	0 0 0 18 2 87.7% 12.3% asonal ⁷ Use Wir Noncon-sumptive 0 4 0 4 0 4 0 4 0	0 0 18 3 87.7% 12.3% - Nonconsump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ & S</i> F Noncon- sumptive ⁴ & O 4 0 4 0 0 4 4 0 0 0 4 4 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 8 Consump- tive Consump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% Noncon- sumptive 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Ins) F Noncon- sumptive 0 4 0 0 0 4 4 0 0 0 4 1996 0 0 0 0	0 0 0 19 3 87.7% 12.3% 12.3% 12.3% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 0 0 18 0 0 0 18 0 0 0 0 0 18	0 0 0 19 3 87.6% 12.4% V Avg. Consump- tive 0 3 0 0 0 0 0 0 3 1999 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 18 3 87.7% 12.3%	5 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	potable purveyors Figure -	domesti wells	ic indus comm mit seasonal Co Seasonal Co 	strial & agricult ercial & agricult string consumptive nsumptive Water a agriculture a agriculture birrigation Fig 6. Average Discha	ure generati	power neration
fresh water 0 <th< td=""><td>consumptive wer generation nonconsumptive SUM: nonconsumptive SUM: PERCENTAGES: nonconsumptive consumptive Consumptive Table 4. Average Sea Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural & non- agricultural & non- sum: power generation SUM: Table 5. Sewage Ger generated in HUC11 imported to HUC11 exported from HUC11</td><td>a) 0 a) 0 a) 0 a) 18 b) 2 a) 17.7% 12.3% 12.3% assonal⁷ Use Win Nonconsumptive 0 0 4 0 0 4 0 0 0</td><td>0 0 0 18 3 87.7% 12.3% - Nonconsump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ & Sr</i> Noncon- sumptive 0 4 4 0 0 0 4 4 0 0 4 0 0 0 0 0 0 0 0</td><td>0 0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>0 0 0 18 3 87.7% 12.3% trive⁵ (millic Sum Noncon- sumptive 0 5 0 0 0 0 0 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>0 0 0 18 3 87.7% 12.3% 0 0 0 0 2 0 0 0 0 0 2 0 0 0 0 2 0</td><td>0 0 0 19 3 87.7% 12.3% 775) F Noncon- sumptive 0 4 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>0 0 0 19 3 87.7% 12.3% ^{(all} Consump tive 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>0 0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 0 0 18 0 0 0 18</td><td>0 0 0 19 3 87.6% 12.4% Consump- tive 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>0 0 18 3 87.7% 12.3%</td><td>is Gallons / Year is Gallons / Year in Gallons / Year in Gallons / Year in d in d in</td><td>potable purveyors Figure -</td><td>domesti wells</td><td>ic indus comm mir Seasonal Co Seasonal Co </td><td>strial & agricult ercial & agricult stive consumptive nsumptive Water a agriculture a agricul</td><td>ure iion ge Loss, by Use </td><td>power neration </td></th<>	consumptive wer generation nonconsumptive SUM: nonconsumptive SUM: PERCENTAGES: nonconsumptive consumptive Consumptive Table 4. Average Sea Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural & non- agricultural & non- sum: power generation SUM: Table 5. Sewage Ger generated in HUC11 imported to HUC11 exported from HUC11	a) 0 a) 0 a) 0 a) 18 b) 2 a) 17.7% 12.3% 12.3% assonal ⁷ Use Win Nonconsumptive 0 0 4 0 0 4 0 0 0	0 0 0 18 3 87.7% 12.3% - Nonconsump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ & Sr</i> Noncon- sumptive 0 4 4 0 0 0 4 4 0 0 4 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% trive ⁵ (millic Sum Noncon- sumptive 0 5 0 0 0 0 0 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 0 0 0 0 2 0 0 0 0 0 2 0 0 0 0 2 0	0 0 0 19 3 87.7% 12.3% 775) F Noncon- sumptive 0 4 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% ^{(all} Consump tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 0 0 18 0 0 0 18	0 0 0 19 3 87.6% 12.4% Consump- tive 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 18 3 87.7% 12.3%	is Gallons / Year is Gallons / Year in Gallons / Year in Gallons / Year in d in	potable purveyors Figure -	domesti wells	ic indus comm mir Seasonal Co Seasonal Co 	strial & agricult ercial & agricult stive consumptive nsumptive Water a agriculture a agricul	ure iion ge Loss, by Use 	power neration
brackish water U	consumptive wer generation nonconsumptive SUM: nonconsumptive SUM: PERCENTAGES: nonconsumptive consumptive Consumptive Table 4. Average Sea Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural & non- agricultural & non- generation SUM: Table 5. Sewage Ger generated in HUC11 imported to HUC11 exported from HUC11 imported from HUC11 mported from HUC11 imported from HUC11	a) 0 a) 0 a) 0 a) 18 a) 2 b) 18 a) 2 b) 12.3% assonal ⁷ Use Win Nonconsumptive 0 4 0 4 0	0 0 0 18 3 87.7% 12.3% - Nonconsu nter Consump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ 4</i> 5r Noncon sumptive 0 4 0 0 4 0 0 4 0 0 4 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 18 3 87.7% 12.3% trive ⁵ (millic Sum Noncon- sumptive 0 5 0 0 0 0 0 0 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% 775 775 1 2.3% 775 1 2.3% 775 1 2.3% 775 1 2.3% 775 1 2.3% 776 1 2.3% 777 1 2.3% 778 1 2.3% 778 1 2.3% 778 1 2.3% 779 1 2.3% 779 1 2.3% 779 1 2.3% 770 1 2.3% 770 1 2.3% 771 1 2.3% 775 1 2.3% 776 1 2.3% 776 1 2.3% 777 1 2.3% 1 2.3% 777 1 2.3% 777 1 2.3% 777 1 2.3% 777 1 2.3% 777 1 2.3% 1 2.3%	0 0 0 19 3 87.7% 12.3% iall Consump tive 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 0 0 18 0 0 0 18 0 0 0 0 0 0 0	0 0 0 19 3 87.6% 12.4% Consump- tive 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3%	Millions Gallons / Year 	potable purveyors Figure -	e 4. Average e 4. Average domestic wells Average Sev eration & Tra	ic indus comm mir Seasonal Co Seasonal Co industrial commercia mining vage Gen- ansfers	strial & agricult ercial & agricult stive consumptive asymptive Water asymptive Water asymptice Water as	ure iion ge Loss, by Use power generati ge Treated-Ef rge Location	
sum: 0	consumptive wer generation nonconsumptive SUM: nonconsumptive SUM: PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group potable purveyors domestic wells dustrial & commercial & mining agricultural & non- agricultural & non- agricultural & non- agricultural irrig. power generation SUM: Table 5. Sewage Ger generated in HUC11 imported to HUC11 exported from HUC11 imported from HUC11 modestination fresh water	a) 0 a) 0 a) 0 a) 18 a) 2 b) 17.7% b) 12.3% assonal ⁷ Use Win Nonconsumptive 0 4 0 4 0 0 4 0	0 0 0 18 3 87.7% 12.3% - Nonconsump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ & Sr</i> Noncon- sumptive 0 4 0 0 4 0 0 4 0 0 4 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% tive ⁵ (millic Sum Noncon- sumptive 0 5 0 0 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 0 0 0 0 2 0 0 0 0 0 2 0 0 0 0 2 0 0 0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 2 0	0 0 0 19 3 87.7% 12.3% 775 Noncon- sumptive 0 4 0 0 4 0 0 0 0 1996 0 0 0 0 0 0 1996 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% iall Consump tive 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 0 0 18 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.6% 12.4% Consump- tive 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 2 	→ 0 → 0 → 0 → 0 → 0 → 0 → 0 → 0 → 0 → 0	potable purveyors Figure -	domestic wells domestic wells Average Sev eration & Tra	ic indus comm mir Seasonal Co Seasonal Co industrial commercia mining vage Gen- ansfers	strial & agricult ercial & agricult stive consumptive nsumptive Water a griculture a griculture	ure iion ge Loss, by Use power generati ye Treated-Ef rge Location 	
	consumptive ower generation nonconsumptive SUM: nonconsumptive SUM: PERCENTAGES: nonconsumptive consumptive Table 4. Average Sea Use Group potable purveyors domestic wells ddustrial & commercial & mining agricultural & non- agricultural & non- agricultural & non- generation SUM: Table 5. Sewage Ger generated in HUC11 imported to HUC11 exported from HUC11 morted to HUC11 morted to HUC11 morted to HUC11 morted from HUC11 imported from HUC11 packination fresh water brackish water	a) 0 a) 0 a) 0 a) 18 a) 2 b) 17.7% b) 12.3% assonal ⁷ Use Win Nonconsumptive 0 4 0 4 0	0 0 0 18 3 87.7% 12.3% - Nonconsu nter Consump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% <i>Imptive ⁴ & Sr</i> Noncon- sumptive 0 4 0 0 4 0 0 4 0 0 4 0 0 4 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 2 Consump- tive 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% trive ⁵ (millic Sum Noncon- sumptive 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% 00 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% 775 Noncon- sumptive 0 4 0 0 0 0 0 1996 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% iall Consump tive 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 19 3 87.7% 12.3% Vear Noncon- sumptive 0 18 0 0 18 0 0 0 18 0 0 0 18 0 0 0 0 18 1998 0 0 0 0	0 0 0 19 3 87.6% 12.4% Consump- tive 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 18 3 87.7% 12.3% average 0 0 0 0	Millions Gallons / Year Millions Gallons / Year Million Gallons / Year Mill	potable purveyors Figure -	domest wells	ic indus comm mir Seasonal Co Seasonal Co industrial commercia mining vage Gen- ansfers	strial & agricult ercial & agricult stive consumptive asymptive Water asymptive Water asymptive Water asymptical agriculture agri	ure iion ge Loss, by Use power generati ge Treated-Ef rge Location brackish	

ble 7. 1999 Water Alloc Water So	ations ¹⁰ in l ource	HUC11 by	Table 9. HUC11 Descriptive
Water Source	MGY		Area:
surface water	0		in this HUC11 only 18.0
ground water	16		upstream HUC11s 0.0
total	16		total watershed 18.0
			(this HUC11 onshore area: 16.9
ble 8. 1999 Water Alloc	ations ¹⁰ in	HUC11 by	
Water Use	Group	-	Population of this HUC11:
Use Group		MGY	Year Population Chang
agricultural		0	1940 221 -
commercial		0	1950 251 13.8%
industrial		0	1960 320 27.3%
irrigation		0	1970 426 32.9%
mining		0	1980 484 13.7%
potable supply		16	1990 575 18.8%
power generation		0	2000 635 10.5%
	tetel.	10	0040 700 44.00

	<u> </u>	
Table 10. Upstre	eam and down	stream HUC11s (in NJ)
location	#	name
downstream:	02040104240	Van Campens Brook / Dunnfield Creek
(if any)		
upstream:		
(if any)		

Landlloo	of this LUIC		
2030	945	18.4%	est.12
2020	798	13.0%	est.12
2010	706	11.2%	est.

- Land Use of this HUC11:											
Tuno	Ye	Change									
туре	1986	1995	Change								
ag.	15.2%	14.4%	-0.8%								
barren	0.2%	0.1%	0.0%								
forest	70.1%	70.5%	0.4%								
urban	2.5%	2.9%	0.4%								
water	7.5%	7.4%	-0.1%								
wetlands	4.5%	4.7%	0.1%								
- % 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 Di	scharge Da	ita			Key fo	r Withc	lrawal Data		Ì	Area of Detail
1999 Treated Effluent Discharge			Source	1999	Withdra	wal	Use Group		KAN	
0 - 50	MGY		GW Confined		No 1999	Use	H ØA	Agricultural		1 FLA
50 - 100	MGY	٠	GW Unconfined	\bigcirc	1 - 50	MGY		Commercial	•	513E
100 - 500	MGY	٠	SW	\triangle	51 - 100	MGY		Industrial	•	
> 500	MGY	•			101 - 500	MGY		Irrigation	•	
Other Permitted	Discharge							Mining		CHS 34
	J				> 500	MGY		Not Classified		
								Potable Supply		1 Start
				MGY	= millions o	fgallons	per year	Power Generation	•	



Table 7. 1999 Water Allocations 10 in HUC11 by Table 9. HUC11 Descriptive Statistics Water Source Water Source Area in this HUC11 only surface water 0 upstream HUC11s ground water total 0 total watershed (this HUC11 onshore are Table 8. 1999 Water Allocations ¹⁰ in HUC11 by Population of this HUC11: Water Use Group MG Population Use Group Year agricultural 1940 249 0 1950 296 commercial 0 industrial 1960 379 0 irrigation 0 1970 486 0 1980 635 mining

0

Table 10. Upstream and downstream HUC11s (in NJ)					
	location	#	name		
	downstream:	02040104150	Flat Brook		
	(if any)				
	upstream:				
	(if any)				
I					

notable supply

power generation

2010	974	11.4%	est. "-
2020	1,101	13.0%	est.12
2030	1,307	18.7%	est.12

786

874

16.8 sq. mi.

16.8 sq. mi.

_sq. mi.

0.0

16.8 sa . mi

Change

18.8%

28.0%

28.3%

30.7%

23.7%

11.3%

Land Use of this HUC11:

1990

2000

Typo	Ye	Change			
Type	1986	1995	Change		
ag.	13.9%	13.5%	-0.4%		
barren	0.0%	0.0%	0.0%		
forest	66.7%	65.8%	-0.9%		
urban	6.5%	7.8%	1.3%		
water	1.1%	1.5%	0.4%		
wetlands	11.7%	11.3%	-0.4%		
% 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.

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





0.5 0 0.5 1 1.5 2 Miles

Key for Di	scharge Data		• •		Key fo	r Witho	lrawal Data		Ì	Area of Detail
1999 Treated E	ffluent Dischar	ge	Source		1999	Withdra	wal	Use Group		1 And
0 - 50	MGY	G	W Confined		No 1999	Use		Agricultural		JE Ed
50 - 100	MGY	G	W Unconfined	\bigcirc	1 - 50	MGY	■●▲	Commercial	•	512E
100 - 500	MGY	S	W	\triangle	51 - 100	MGY		Industrial	•	K K K
> 500	MGY				101 - 500	MGY		Irrigation	•	E TH
Other Permitted	Discharge							Mining	•	CH Y
					> 500	MGY		Not Classified		
								Potable Supply	•	the start
				MGY	= millions o	fgallons	per year	Power Generation	•	



И	Water Source		
Water Source		MGY	
surface water		0	
ground water		0	
	total	0	







Table 10 Upstream and downstream HUC11s (in N I)					
location					
location	#	name			
downstream:	02040104150	Flat Brook			
(if any)					
upstream:					
(if any)					

2010	2,138	12.6%	est.
2020	2,452	14.7%	est.12
2030	2,887	17.8%	est.12

Land Use of this HUC11:

Typo	Ye	Change			
туре	1986	1995	Change		
ag.	0.5%	0.4%	-0.1%		
barren	0.0%	0.0%	0.0%		
forest	86.0%	85.9%	0.0%		
urban	1.6%	1.6%	0.1%		
water	1.9%	1.9%	0.0%		
wetlands	10.1%	10.0%	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.

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





Key for Discharge Data		Key for Withdrawal Data	Ì	Area of Detail
1999 Treated Effluent Discharge	Source	1999 Withdrawal	Use Group	A A
0 - 50 MGY •	GW Confined	No 1999 Use ■•▲	Agricultural 😑	JZ EN
50 - 100 MGY 🔶	GW Unconfined 🛛 🔿	1-50 MGY ■●▲	Commercial 🛛 🔴	515E
100 - 500 MGY 🔶	SW 🛆	51-100 MGY ■●▲	Industrial 🛛 🔴	4577
> 500 MGY 🔶		101 - 500 MGY	Irrigation 🥚	1 the
Other Permitted Discharge 🔹			Mining 📃 😑	CTP 1
5		> 500 MGY	Not Classified 📃 🔍	EXX X
			Potable Supply 📃 🔵	the for
	MGY	′ = millions of gallons per year	Power Generation 🥚	

Table 7. 1999 Water Allocations ¹⁰ in HUC11 by Table 9. HUC11 Descriptive Statistics Water Source Water Source Area in this HUC11 only 16.9 sq. mi. surface water 0 49.4 upstream HUC11s ground wate 66.2 sq. mi. total 0 total watershed (this HUC11 onshore are 16.9 Table 8. 1999 Water Allocations ¹⁰ in HUC11 by Population of this HUC11: Water Use Group MG Population Change Use Group Year agricultural 1940 186 0 9.4% 1950 204 commercial 0 industrial 1960 253 24.5% 0 44.8% irrigation 0 1970 367 1980 280 -23.5% mining potable supply 0 1990 264 -5.9%

power generation

2010	267	3.0%	est.
2020	276	3.6%	est.12
2030	322	16.6%	est.12

-1.9%

259

_sq. mi.

. mi

Land Use of this HUC11:

2000

Typo	Ye	Change			
туре	1986	1995	Change		
ag.	6.0%	6.0%	0.0%		
barren	0.1%	0.1%	0.0%		
forest	85.8%	85.9%	0.0%		
urban	0.9%	0.9%	0.0%		
water	1.4%	1.5%	0.0%		
wetlands	5.8%	5.8%	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.

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

Key for Discharge Data		Key for Withdrawal Data]	Area of Detail
1999 Treated Effluent Discharge	Source	1999 Withdrawal	Use Group	AN
0 - 50 MGY •	GW Confined	No 1999 Use ■●▲	Agricultural 😑	1 FLSI
50 - 100 MGY 🔶	GW Unconfined \bigcirc	1-50 MGY ■●▲	Commercial 🛛 🔴	ちまた
100 - 500 MGY 🔶	SW 🛆	51-100 MGY ■●▲	Industrial 🛛 🔴	K ST
> 500 MGY 🔶		101 - 500 MGY	Irrigation 🥚	E Tra
Other Permitted Discharge 🔹			Mining 📃 😑	CHART
9		> 500 MGY	Not Classified 📃 🔍	EXX X
			Potable Supply 📃 🔵	the second
	MG	Y = millions of gallons per year	Power Generation 😑	V

WMA:			Upp	er Delaw	are			01										
HUC11:		Van Ca	ampens E	Brook / Di	unnfield C	reek		02	2040104	240	1							
	·								l									
Table 1. Freshwater Withdrawals (Q)	¹ Withdrawal 1990	s in the HU 1991	C11 (millic 1992	ons of gallo 1993	o ns) 1994	1995	1996	1997	1998	1999	average		Fig 1. A	verage Sourc	ce of	Fig 2. Averag	ge Destination	
Delaware Rive othe	r O r O	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	25						
ound-water: ³ confine	n u d 0	0	0	0	0	0	0	0	0	0	0	ea ≻/su	-				-	
unconfine	d 20	20	20	21	21	22	22	22	23	24	21	9 9 10 -					_	
total withdrawals:	20	20	20	21	21	22	22	22	23	24	21	illiw 5 –						
Table 2. Freshwater imports ¹¹	Imports To &	Exports Fr	om the HU	C11 (milli	ons of galloi 0	15) 0	0	0	0	0	0	0 LL g	round	surface	imports	consump-	nonconsump-	exports
exports ¹¹	0	0	0	0	0	0	0	0	0	0	0	v	water	water		live (evaporated)	evaporated)	
Table 3. Nonconsun Water use able purveyors nonconsumptive consumptive	nptive* & Cor 1990 e 0 e 0	0 0	0 0	e [°] in the H 1993 0 0	0 0	e Type (mi 1995 0 0	0 0	0 0	1998 0 0	1999 0 0	average 0 0	25		Figure 3. C	consumptive	& Nonconsumpti	ve Use]
mestic wells nonconsumptive consumptive	e 17	17	18 2	18 3	19 3	19 3	19 3	- 19 3	20 3	21	19	02 gr						
lustrial & commercial & i nonconsumptive consumptive	mining e 0 e 0	0	0	0	0	0	0	0	0	0	0	/ × 15 + -						
ricultural & non-agricultu nonconsumptive consumptive	e 0 e 0	0	0	0	0	0	0	0	0	0	0	9 10 Willion						
wer generation nonconsumptive consumptive	e 0 e 0	0	0	0 0	0	0 0	0 0	0	0	0	0	0						
SUM: nonconsumptive	e 17	17	18	18	19	19	19 3	19	20	21	19		potable purveyors	domestic wells	indust comme mini	rial & agricult rcial & agricult ing & irriga	ure p tion gen	ower eration
PERCENTAGES: nonconsumptive	e 87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.6%	87.6%	87.7%				nonconsumpt	ive consumptive		
Condumptiv	12.070	12.070	12.070	12.070	12.070	12.070	12.070	12.070	12.470	12.470	12.070							
Table 4. Average Se	asonal ⁷ Use	- Nonconsu	mptive ⁴ &	Consump	tive ^₅ (millio	ns of gallo	ns)	211	Voor				Figure	e 4. Average S	Seasonal Con	sumptive 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		تع a				 		
potable purveyors	0	0	0	0	0	0	0	0	0	0	-	× 2 +						- winter
domestic wells dustrial & commercial &	4	0	4	0	5	2	5	0	19	3	-	allo 2						_ spring
mining agricultural & non-	0	0	0	0	0	0	0	0	0	0	-	0 u 1						- fall
agricultural irrig.	0	0	0	0	0	0	0	0	0	0	-	≣1+						
SUM:	4	0	4	0	5	2	5	0	19	3	-	pota purve	able eyors	domestic wells	industrial commercial mining	& agriculture	power generatio	'n
Table 5. Sewage Ge	neration & Tra 1990	ansfers° in 1991	the HUC11 1992	1 (millions 1993	of gallons) 1994	1995	1996	1997	1998	1999	average	F	igure 5.	Average Sew eration & Tra	age Gen- nsfers	Fig 6. Averaç Discha	je Treated-Effl rge Location	uent
generated in HUC11 imported to HUC11	0	0	0	0	0	0	0	0	0	0	0	1 1						1
exported from HUC11	0	Ő	Ő	0	Ő	Ő	0	0	Ő	0	Ő					<u> </u>		
Table 6 Destination	of Treated Fi	fluent (Rec	laimed-Wa	ter) Dische	raes ⁹ in the	HUC11 (n	nillions of	gallone)										
destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average					I		
tresh water brackish water	0	0 0	0	0	0	0	0 0	0	0	0	0	۰ <u>۲</u>						
	0	0	0	0	0	0	0	0	0	0	0	ge	enerated	imported	exported	tresh water	brackish water	salt

Table 7. 1999 Water Alloc Water So	ations ¹⁰ in HUC11 by ource	Та	ble 9. HUC11
Water Source	MGY		Area:
surface water	0	in	this HUC11 on
ground water	0	u	pstream HUC1
total	0		total watershed
Table 8. 1999 Water Alloc Water Use	ations ¹⁰ in HUC11 by Group	<u>(this</u>	HUC11 onshore
Use Group	MGY	Y	ear Popu
agricultural	0	1	940 21
commercial	0	1	950 21
industrial	0	1	960 22
irrigation	0	1	970 33
mining	0	1	980 48
potable supply	0	1	990 60
nower generation	0		000 74

Table 9. HUC11 Descriptive Statistics							
Area:							
in this HL	IC11 only	23.3	sq. mi.				
upstream	HUC11s	0.0	sq. mi.				
total wa	tershed	23.3	sq. mi.				
his HUC11	onshore area:	22.4	sq. mi.)				
Population of this HUC11:							
Year	Population	Change	_				
1940	217	-					
1950	218	0.5%					
1960	227	4.3%					
1970	339	49.4%					
1980	486	43.1%					
1990	607	24.9%					
2000	710	17.1%					
			12				

able 10. Upstream and downstream HUC11s (in NJ)					
location	#	name			
downstream:	02040105060	Stony Brook / Delawanna Creek			
(if any)					
upstream:					
(if any)					

	2010	811	14.1%	est. 🗠
	2020	861	6.3%	est.12
	2030	909	5.6%	est.12
Г				

-- Land Use of this HUC11:

Type	Ye	ar	Change
туре	1986	1995	Change
ag.	2.0%	1.9%	-0.1%
barren	0.0%	0.0%	0.0%
forest	89.0%	89.1%	0.1%
urban	1.2%	1.2%	0.0%
water	4.8%	4.6%	-0.1%
wetlands	3.0%	3.1%	0.1%
% 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 or by the equation in the decision in the decision of the most set of the set

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 Discha	arge Data	Key for Withdrawal Data					Ì	Area of Detail	
1999 Treated Efflue	nt Discharge	Source		1999	Withdra	wal	Use Group		RA
0 - 50 MG 50 - 100 MG 100 - 500 MG	iY • iY •	GW Confined GW Unconfined SW		No 1999 1 - 50 51 - 100	Use MGY MGY		Agricultural Commercial Industrial Irrigation	•	
> 500 MG Other Permitted Disc	charge 🖕		MGY	101 - 500 > 500 = millions o	MGY MGY fgallons	per year	Mining Not Classified Potable Supply Power Generation	•	

WMA:		Upper Delaware						01				
HUC11:	Trout Brook / Swartswood Lake					02	20401050	30				
Table 1 Freshwater ¹	Withdrawa	s in the HI II	C11 (millio	ons of gally	nas)							
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	140
sum	0	0	0	0	0	0	0	0	0	0	0	
ound-water: ° confined	0	0	0	0	0	0	0	0	0	0	0	§ 80 +
unconfined sum	114 114	114 114	115 115	116 116	117 117	118 118	119 119	119 119	120 120	122 122	118 118	
total withdrawals:	114	114	115	116	117	118	119	119	120	122	118	
Table 2. Freshwater li	nports To &	Exports Fr	om the HU	IC11 (milli	ons of gallor	ıs)						
imports ¹¹ exports ¹¹	0	0	0 0	0	0	0	0 0	0	0	0 1	0	ground surface imports tive (evaporated) tive (not water water consump- accessed acc
net	0	0	0	0	0	0	0	0	0	(1)	(0)	evaporated)
Table 3 Nonconsum	ntive ⁴ & Co	nsumntive ⁵	Wator Use	a ⁶ in the H	UC11 by Us	e Type (mi	llions of a	allons				
Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0	Figure 3. Consumptive & Nonconsumptive Use
consumptive	0	0	0	0	0	0	0	0	0	0	0	120
nonconsumptive consumptive	100 14	100 14	101 14	101 14	103 14	103 15	104 15	105 15	106 15	106 15	103 14	हु 100
dustrial & commercial & m nonconsumptive	ining 0	0	0	0	0	0	0	0	0	0	0	د ۳ 80
consumptive	0 el irrigation	0	0	0	0	0	0	0	0	0	0	₩ 9 60 +
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0	is ₩ 40
consumptive ower generation	0	0	0	0	0	0	0	0	0	0	0	20
nonconsumptive consumptive	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0
SUM: nonconsumptive	100	100	101	101	103	103	104	105	106	106	103	potable domestic commercial & agriculture power
	14	14	14	14	14	15	15	15	15	15	14	purveyors wens mining a migauon generation
nonconsumptive	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	nonconsumptive consumptive
consumptive	12.370	12.370	12.370	12.570	12.370	12.370	12.370	12.370	12.370	12.370	12.070	
Table 4. Average Sea	sonal ⁷ Use	- Nonconsu	mptive ⁴ &	Consump	tive⁵ (millio	ns of gallo	ns)					
Use Group	Wi Noncon-	nter Consump-	Sp Noncon-	ring Consump-	Sum Noncon-	mer Consump-	F Noncon-	all Consump-	Yearly Noncon-	y Avg. Consump-		16
notable purveyors	sumptive	tive	sumptive	tive .	sumptive	tive 0	sumptive	tive	sumptive	tive .	-	
domestic wells	24	0	24	2	30	10	25	2	103	14	-	g 10
mining	0	0	0	0	0	0	0	0	0	0	_	
agricultural & non- agricultural irrig.	0	0	0	0	0	0	0	0	0	0	_	
power generation SUM:	0	0	0 24	0	0 30	0	0 25	0	0	0	-	
			•				•		•			potable domestic illustrial a agriculture power purveyors wells commercial & & irrigation generation
												nining
Table 5 Sewage Gen	eration & Tr	ansfers ⁸ in	the HUC1:	1 (millions	of gallons)							Figure 5 Average Sources Con Fig 6 Average Tracted Effluent
rapic to be hage con	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	eration & Transfers Discharge Location
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0	1++
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0	
Table 6. Destination of	of Treated E	ffluent (Rec	laimed-Wa	ter) Discha	arges ⁹ in the	HUC11 (m	illions of	gallons)	1009	1000	averago	
fresh water	0	0	0	0	0	0	0	0	0	0	0	
brackish water	0	0 0	0	0	0 0	0 0	0 0	0 0	0 0	0 0	0	generated imported exported fresh brackish salt
salt water	0											

Table 7. 1999 Water Alloc Water So	ations ¹⁰ in HUC11 by ource	Table	9. HUC11 Descri
Water Source	MGY	Are	ea:
surface water	0	in thi	s HUC11 only
ground water	6	upst	ream HUC11s
total	6	tot	al watershed
		(this HU	C11 onshore area:
Table 8. 1999 Water Alloc	ations ¹⁰ in HUC11 by	,	
Water Use	Group	Popu	lation of this HUC1
Use Group	MGY	Yea	r Population (
agricultural	0	194	0 671
commercial	0	195) 787
industrial	0	196	0 1,290
industrial irrigation	0 0	196 197	0 1,290 0 2,092
industrial irrigation mining	0 0 0	196 197 198	0 1,290 0 2,092 0 3,786
industrial irrigation mining potable supply	0 0 0 6	196/ 197/ 198/ 199/	1,290 2,092 3,786 4,194
industrial irrigation mining potable supply power generation	0 0 0 6 0	196 197 198 199 200	0 1,290 0 2,092 0 3,786 0 4,194 0 4,392

able 9. HUC11 Descriptive Statistics							
- Area:							
in this H	JC11 only	27.8	sq. mi.				
upstrear	n HUC11s	0.0	sq. mi.				
total wa	atershed	27.8	sq. mi.				
is HUC11	onshore area:	27.8	sq. mi.)				
Populatio	on of this HUC	C11:					
Year	Population	Change					
1940	671	-					
1950	787	17.2%					
1960	1,290	64.0%					
1970	2,092	62.1%					
1980	3,786	81.0%					
1990	4,194	10.8%					
2000	4,392	4.7%					
			, 12				

location	#	name
downstream: (if any)	02040105040	Paulins Kill (above Stillwater Village)
upstream:		
(if any)		

1990	4,194	10.8%	
2000	4,392	4.7%	
2010	4,646	5.8%	est.12
2020	4,925	6.0%	est.12
2030	5,413	9.9%	est.12

 Land Use of this HUC11: 	
---	--

Typo	Ye	ar	Change
туре	1986	1995	Change
ag.	5.6%	5.2%	-0.4%
barren	0.2%	0.1%	-0.1%
forest	65.1%	64.6%	-0.5%
urban	8.2%	9.2%	0.9%
water	7.1%	7.1%	0.0%
wetlands	13.8%	13.9%	0.0%
% 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 or by the equation in the decision in the decision of the most set of the set

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 D	ischarge Da	ta			Key fo	r Withd	Irawal Data	Ĺ	Ì	Area of Detail
1999 Treated	Effluent Disch	narge	Source		1999	Withdra	wal	Use Group		AT
0 - 50	MGY	•	GW Confined		No 1999	Use	H ¢A	Agricultural		22.24
50 - 100	MGY	٠	GW Unconfined	\bigcirc	1 - 50	MGY	H • A	Commercial	•	5177
100 - 500	MGY	•	SW	\triangle	51 - 100	MGY		Industrial	•	K-SCT
> 500	MGY	•			101 - 500	MGY		Irrigation	٠	a tra
Other Permitte	d Discharge	•				in o i		Mining		CHS 31
	9				> 500	MGY		Not Classified		
								Potable Supply		A A A
				MGY	= millions o	fgallons	per year	Power Generation	•	

			Upp	er Delaw	are			01				
HUC11:			Uppe	r Paulins	s Kill			02	20401050)40	I	
											1	
Table 1. Freshwater Withdrawals (Q)	¹ Withdrawal 1990	in the HU 1991	C11 (millio 1992	ns of gallo 1993	ons) 1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination
urface water: ² Delaware Rive	er O	0	0	0	0	0	0	0	0	0	0	
otne sur	m 35	35	14	38	18	25	14	17	25	35	26	2,500
confine	d 0	0	0	0	0	0	0	0	0	0	0	2,000 +
sur	m 2,819	2,413	2,425	2,622	2,347	2,637	3,225	2,941	2,967	2,771	2,717	· ලී් 5_1,000
total withdrawals:	2,854	2,448	2,438	2,660	2,366	2,662	3,239	2,958	2,992	2,806	2,742	500
Table 2. Freshwater	Imports To &	Exports Fr	om the HU	C11 (milli	ons of gallor	15)	261	363	220	324	363	0 J
exports ¹¹	0	0	0	0	0	2	2	7	18	23	5	water water (evaporated)
Tiet	375	379	375	424	300	330	300	300	321	301	330	
Table 3. Nonconsun	nptive ⁴ & Cor	sumptive ⁵	Water Use	⁶ in the H	UC11, by Us	e Type (m	illions of g	allons)	1009	1000	averago	
otable purveyors	1990	074	1992	447	1334	1990	1990	1001	100	1333	AVERAGE	Figure 3. Consumptive & Nonconsumptive Use
consumptiv	e 360 e 50	45	369 43	447 60	415	389 43	430 48	431 47	427 46	411 43	405 47	2,500
omestic wells nonconsumptiv	re 277	278	280	284	288	292	296	300	306	311	291	2,000
consumptiv dustrial & commercial &	e 39 mining	39	39	40	41	41	42	42	43	44	41	۶ 1 500
nonconsumptiv consumptiv	e 2,192 /e 299	1,817 248	1,823 249	1,956 268	1,678 229	1,942 265	2,433 332	2,175 296	2,165 294	1,981 270	2,016 275	
ricultural & non-agricultu	ural irrigation	3	1	3	2	3	1	2	3	4	2	
consumptiv	e 10	26	7	24	17	24	13	15	28	40	20	500
nonconsumptiv	e 0	0	0	0	0	0	0	0	0	0	0	
SUM:	2 830	2 /69	2 472	2 690	2 383	2 626	3 160	2 908	2 900	2 707	2 714	industrial & agriculture power
consumptiv	e 398	358	337	392	335	373	434	401	412	397	384	purveyors wells mining & irrigation generation
nonconsumptiv	e 87.7%	87.4%	88.0%	87.3%	87.7%	87.6%	87.9%	87.9%	87.6%	87.2%	87.6%	nonconsumptive consumptive
Consumptiv	e 12.3%	12.0%	12.0%	12.770	12.3%	12.4%	12.170	12.176	12.4%	12.070	12.4%	
Table 4. Average Se	asonal ⁷ Use	- Nonconsı	ımptive⁴ &	Consump	tive⁵ (millio	ns of gallo	ons)					Figure 4 Average Seasonal Consumptive Water Loss by Use
Use Group	Wir Noncon-	ter Consump-	Spr Noncon-	ring Consump-	Sum Noncon-	mer Consump-	F Noncon-	all Consump	Yearl Noncon-	y Avg. Consump		
potable purveyors	sumptive 110	tive 0	sumptive 103	tive 7	sumptive 92	tive 32	sumptive 102	tive 9	sumptive 407	tive 47	-	
domestic wells	67	0	68	5	85	29	71	7	291	41	-	§ 150
mining agricultural & non-	516	70		75	501	68	449	61	2,016	275	-	ö <u>5</u> 100
agricultural irrig.	0	0	0	2	2	15	0	3	2	20	_	
SUM:	693	70	722	89	679	145	623	79	2,717	384	_	potable domestic industrial & agriculture power
												purveyors wells commercial & & irrigation generation mining
	neration & Tra 1990	Insfers ⁸ in 1991	the HUC11 1992	(<i>millions</i> 1993	of gallons) 1994	1995	1996	1997	1998	1999	average	Figure 5. Average Sewage Gen- eration & Transfers Discharge Leastion
Table 5. Sewage Ge		334	371 22	395 24	389 23	336 20	431 26	317 19	359 21	343 20	357 21	
Table 5. Sewage Ge	292 17	20	1	2	2	2	2	1	1	1	2	
Table 5. Sewage Ge generated in HUC11 imported to HUC11 exported from HUC11	292 17 2	20										<u><u><u></u></u> 250 H</u>
Table 5. Sewage Ge generated in HUC11 imported to HUC11 exported from HUC11	292 17 2	1										
Table 5. Sewage Ge generated in HUC11 imported to HUC11 exported from HUC11 Table 6. Destination	292 17 2	1	laimed-Wat	ter) Discha	arges ⁹ in the	e HUC11 (n	nillions of	gallons)			1	g 150
Table 5. Sewage Ge generated in HUC11 imported to HUC11 exported from HUC11 Table 6. Destination destination fresh water	292 17 2 of Treated Et 1990 307	20 1 fluent (Rec. 1991 353	laimed-Was 1992 392	<i>ter) Discha</i> <u>1993</u> 417	arges⁹ in the <u>1994</u> 410	HUC11 (n <u>1995</u> 355	nillions of 1996 455	gallons) 1997 335	1998 378	<u>1999</u> 362	average 376	
Table 5. Sewage Ge generated in HUC11 imported to HUC11 exported from HUC11 Table 6. Destination destination fresh water brackish water salt water	292 17 2 of Treated Et 1990 307 0 0	20 1 fluent (Rec <u>1991</u> 353 0 0	laimed-Wa 1992 392 0 0	<i>ter) Discha</i> <u>1993</u> 417 0 0	arges⁹ in the <u>1994</u> 410 0 0	HUC11 (n <u>1995</u> 355 0 0 0	nillions of 1996 455 0 0	gallons) 1997 335 0 0	1998 378 0 0	1999 362 0 0	average 376 0 0	g 200 g 200 150 150 0 0 0 0 0 0 0 0 0 0 0 0 0

Water Source Water Source MGY 877 surface water ground water 3,034 3,034 total 3,911 Table 8. 1999 Water Allocations ¹⁰ in HUC11 by

Water Use Group MGY Use Group agricultural 0 37 commercial 70 61 industrial irrigation mining 3,251 potable supply 492 power generation 0

Table 9. HUC11 Descriptive Statistics								
Area:								
in this HL	JC11 only	79.4	sq. mi.					
upstream	HUC11s	27.8	sq. mi.					
total wa	tershed	107.1	sq. mi.					
(this HUC11	onshore area:	79.4	sq. mi.)					
Populatio	n of this HUC	211:						
Year	Population	Change	_					
1940	8,484	-						
1950	9,517	12.2%						
1960	12,610	32.5%						
1970	15,836	25.6%						
1980	20,333	28.4%						
1990	21,845	7.4%						
2000	24,210	10.8%						
2010	26,964	11.4%	est.12					
2020	29,609	9.8%	est.12					
2030	32,278	9.0%	est.12					

Table 10. Upstream and downstream HUC11s (in NJ)							
location	#	name					
downstream:	02040105050	Paulins Kill (below Stillwater Village)					
(if any)							
upstream:	02040105030	Trout Brook / Swartswood Lake					
(if any)							

- Land Use of this HUC11:

Type	Ye	ar	Change
i ype	1986	1995	Change
ag.	24.2%	20.9%	-3.3%
barren	1.3%	1.3%	0.0%
forest	41.2%	41.4%	0.2%
urban	13.8%	17.1%	3.3%
water	3.5%	3.7%	0.2%
wetlands	15.9%	15.6%	-0.3%
% of this H	IUC11 in:		
Pinela	nds:	0.0%	
Highla	nds:	12.3%	

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 Discharge	Source	1999 Withdrawal	Use Group	
0-50 MGY •	GW Confined 🛛	No 1999 Use ■●▲	Agricultural 🛛 😑	ZEN
50 - 100 MGY 🔸	GW Unconfined \bigcirc	1-50 MGY ■●▲	Commercial 🛛 🔴	ちまむ
100 - 500 MGY 🔶	SW 🛆	51-100 MGY ■●▲	Industrial 😑 😑	Krs 1
> 500 MGY 🔶		101 - 500 MGY	Irrigation 🥚	a tra
Other Permitted Discharge 🔹			Mining 🗧 🗧	CHS Y
		> 500 MGY	Not Classified 📃 🌑	SXX X
			Potable Supply 📃 🔵	The for
	MG`	Y = millions of gallons per year	Power Generation 😑	

WMA:			Upp	er Delawa	are			01				
HUC11:			Lowe	r Paulins	Kill			02	20401050)50		
Table 1 Freshwater	Withdrawal	s in the HIII	C11 (millio	ns of gallo	ne)							
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 1 469	0 1 852	0 2 214	0 3 915	0 2 654	0 4 399	0 1 774	0 2 330	0 1.615	0	6,000
sum	3,383	1,469	1,852	2,214	3,915	2,654	4,399	1,774	2,330	1,615	2,561	5,000
confined	0	0	0	0	0	0	0	0	0	0	0	2 4,000 +
unconfined sum	257 1 257	253 253	253 253	262 262	263 263	263 263	269 269	274 274	284 284	274 274	265 265	g 5 2,000 +
total withdrawals:	3,640	1,723	2,105	2,476	4,178	2,917	4,669	2,048	2,614	1,889	2,826	[₹] 1,000
Table 2. Freshwater	Imports To &	Exports Fr	om the HU 0	C11 (millio 0	ons of gallor 0	15) 0	0	0	0	0	0	ground surface imports trive trive to the consump-
exports ¹¹ net	0	0	0	0	0	0	0	0	0	0	0	water water (evaporated) evaporated)
Table 3. Nonconsum Water use	<i>ptive</i> ⁴ & Cor 1990	<i>sumptive</i> ⁵ 1991	Water Use 1992	" in the H 1993	UC11, by Us 1994	e Type (mi 1995	llions of g 1996	allons) 1997	1998	1999	average	
otable purveyors nonconsumptive	3,310	1,439	1,820	2,176	3,829	2,603	4,309	1,749	2,298	1,555	2,509	Figure 3. Consumptive & Nonconsumptive Use
consumptive	3	14	8	9	10	3	4	4	4	2	6	2500
nonconsumptive	188 26	189 27	190 27	194 27	197 28	202 28	205 29	208 29	211 30	215 30	200 28	
dustrial & commercial & n	nining	21	2,		20	20	20		0	0		2,000 +
consumptive consumptive	0 0	0	0	0	0	0	0	0	0	0	0	⁹ _☉ 1,500
nonconsumptive	a irrigation	1	1	1	1	1	1	1	1	5	1	§ 1,000 −
consumptive ower generation	8	13	10	9	9	11	8	11	10	40	13	500
nonconsumptive consumptive	3,286 88	1,417 38	1,793 48	2,146 57	3,803 102	2,573 69	4,276 114	1,716 46	2,259 60	1,529 41	2,480 66	o ,
SUM: nonconsumptive	6,785	3,046	3,805	4,517	7,831	5,378	8,790	3,675	4,769	3,304	5,190	industrial & agriculture power purveyors wells mining & irrigation generation
PERCENTAGES:	126	91	92	103	149	112	155	90	104	114	113	
nonconsumptive consumptive	98.2% 1.8%	97.1% 2.9%	97.6% 2.4%	97.8% 2.2%	98.1% 1.9%	98.0% 2.0%	98.3% 1.7%	97.6% 2.4%	97.9% 2.1%	96.7% 3.3%	97.9% 2.1%	
Table 4. Average Sea	asonal ⁷ Use Wir	- Nonconsu iter	mptive ⁴ & Spi	Consump ring	<i>tive⁵ (millio</i> Sum	ns of gallo mer	ns) F	all	Year	y 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		× 00 +
potable purveyors	8 46	1	8 47	2	6	3	8	2	30 200	8 28	-	2 50
ndustrial & commercial &	0	0	0	0	0	0	0	0	0	0	_	© 40
agricultural & non-	0	0	0	1	1	10	0	1	1	13	-	
power generation	873	23	940	25	300	8	366	10	2,480	66	-	
50M.	927	24	995	31	300	42	423	17	2,711	115		potable domestic industrial & agriculture power purveyors wells commercial & & irrigation generation
												mining
Table 5. Sewage Ger	eration & Tra	ansfers [®] in	the HUC11	(millions	of gallons)						1	Figure 5. Average Sewage Gen- Fig 6. Average Treated-Effluent
generated in HUC11	1990 2	1991 2	1992 7	1993 9	1994 8	1995 6	1996 5	1997 16	1998 11	1999 10	average 8	eration & Transfers Discharge Location
imported to HUC11 exported from HUC11	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	7
Table 6. Destination	of Treated Et	fluent (Rec	laimed-Wa	ter) Discha	rges [°] in the	HUC11 (n	nillions of	gallons)				
destination fresh water	1990	1991	1992	1993	1994	1995	1996	1997	1998 11	1999	average 8	
brackish water	0	0	0	0	0	0	0	0	0	0	0	0 + fresh brackish salt
salt water	0	2	7	9	8	6	5	16	11	10	8	generated imported exported water water water

			_				
ble 7. 1999 Water Al Water	locations ¹⁰ il Source	n HUC11 by		Table 9.	HUC11 Desc	riptive S	tatis
Water Source	MGY			Area:			
surface water	1,200,145	_		in this H	UC11 only	69.8	sq.
ground water	37			upstream	n HUC11s	107.1	sq.
tota	al 1,200,183	-		total wa	atershed	177.0	sq.
				(this HUC11	onshore area:	69.8	sq. i
le 8. 1999 Water Al	locations ¹⁰ i	n HUC11 bv		`			
Water L	lse Group			Populatio	on of this HU(211:	
Use Group		MGY		Year	Population	Change	
agricultural		145		1940	2,151	-	-
commercial		0		1950	2,370	10.2%	
industrial		0		1960	2,808	18.5%	
irrigation		0		1970	3,676	30.9%	
mining		0		1980	6,508	77.1%	
potable supp	ly	37		1990	7,844	20.5%	
power generat	ion	1,200,000		2000	8,525	8.7%	

Table 10. Upstre	Table 10. Upstream and downstream HUC11s (in NJ)							
location	#	name						
downstream:	02040105060	Stony Brook / Delawanna Creek						
(if any)								
upstream:	02040105030	Trout Brook / Swartswood Lake						
(if any)	02040105040	Paulins Kill (above Stillwater Village)						

total 1,200,183

Land Use	of this HUC	11:	
2030	10,461	6.5%	est.12
2020	9,821	7.1%	est.12
2010	9,168	7.5%	est."

- Lanu Use d									
Tuno	Ye	ar	Change						
туре	1986	1995	Change						
ag.	18.7%	16.3%	-2.3%						
barren	0.2%	0.1%	-0.1%						
forest	59.3%	59.4%	0.2%						
urban	10.3%	12.5%	2.2%						
water	3.1%	3.0%	0.0%						
wetlands	8.5%	8.6%	0.0%						
% of this HUC11 in:									
Pinela	nds:	0.0%							
Highla	nds:	8.9%							

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 Di	scharge Data			Key for With	drawal Data	t in the second s	Ì	Area of Detail
1999 Treated E	ffluent Discha	ge Source		1999 Withdr	awal	Use Group		AL
0 - 50 50 - 100 100 - 500	MGY MGY MGY	GW Confined GW Unconfined SW		No 1999 Use 1 - 50 MGY 51 - 100 MGY		Agricultural Commercial Industrial Irrigation	•	
> 500 Other Permitted	MGY Discharge		MGY	101 - 500 MGY > 500 MGY = millions of gallon:	s per year	Mining Not Classified Potable Supply Power Generation	•	

WMA:			Upp	per Delaw	are			01				
HUC11:		Sto	ony Broo	k / Delaw	anna Creel	ĸ		02	20401050	060		
Table 1. Freshwater ¹ Withdrawals (Q)	¹ Withdrawal 1990	s in the HU 1991	C11 (millio 1992	ons of gallo 1993	o ns) 1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination
<i>Irface water:</i> 2 Delaware River	r O	948	1,038	1,002	991	948	707	931	815	609	799	100,000 Fresh Water of Fresh Water
other sum	r 53,961	53,076 54,024	53,076 54,114	53,076 54.078	40,475	53,076 54,024	39,843 40,550	26,178	39,699 40,514	53,364 53,973	46,582 47,381	
round-water: 3	1	0	0	0	0	0	0	0	0	0	0	
unconfined	1 0 1 197	203	236	0 217	235	0 287	289	0 287	290	0 319	256	
sum total withdrawals:	n 197 54,159	203	236	217	235	287	289	287	290	319 54,291	256 47.637	
		• ,	- ,	- ,	,	- ,	,		,	,	,	≥ 20,000
Table 2. Freshwater	Imports To &	Exports Fr 23	rom the HU 23	IC11 (milli 17	ons of gallor 17	15) 20	19	19	21	24	20	ground surface imports consump- exports
exports ¹¹	0	0	0	0	0	0	0	0	0	0	0	water water (evaporated) evaporated)
net	22	23	23	17	17	20	19	19	21	24	20	
Table 3. Nonconsum	ptive ⁴ & Cor 1990	nsumptive ⁵	Water Use	e ⁶ in the H	IUC11, by Us	e Type (mi 1995	llions of g	allons) 1997	1998	1999	average	
otable purveyors		F0.07-	1002 E0 655	F0 07-7	40.455	F0.05	00.000		00.7.5	F0.05-	40 545	Figure 3. Consumptive & Nonconsumptive Use
nonconsumptive consumptive	e 53,096 e 2	53,097 2	53,096 2	53,092 2	40,490 2	53,094 2	ა9,860 2	∠6,195 2	39,718 2	53,385 3	46,512 2	50,000
mestic wells	55	56	57	58	59	60	61	62	63	64	59	40,000
consumptive	8	8	8	8	8	8	9	9	9	9	8	ğ 35,000
dustrial & commercial & n nonconsumptive	mining 918	979	1,089	1,038	1,043	1,050	834	1,032	930	769	968	
consumptive	e 102	109	121	115	116	117	93	115	103	85	108	
nonconsumptive	e 1	1	1	1	1	1	1	1	1	1	1	
consumptive ower generation	8	8	8	8	8	8	8	8	8	8	8	10,000
	53,076	53,076 0	53,076 0	53,076 0	40,475 0	53,076 0	39,843 0	26,178 0	39,699 0	53,364 0	46,494	5,000 +
SUM: nonconsumptive	107,146	107,208	107,319	107,264	82,068	107,281	80,599	53,468	80,410	107,583	94,034	potable domestic industrial & agriculture power
	120	127	139	133	134	135	111	133	122	105	126	mining a migutori gororatori
nonconsumptive	99.9%	99.9%	99.9%	99.9%	99.8%	99.9%	99.9%	99.8%	99.8%	99.9%	99.9%	nonconsumptive consumptive
consumptive	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	0.2%	0.2%	0.1%	0.1%	
Table 4. Average Sea	asonal ⁷ Use	- Nonconsu	Imptive ⁴ 8	Consump	ptive⁵ (millio	ns of gallo	ns)		1			Figure 4 Average Seasonal Consumptive Water Loss by Use
Use Group	Wii Noncon-	ter Consump-	Sp Noncon-	Consump-	Sum Noncon-	mer Consump-	Fa Noncon-	all Consump·	Yearl Noncon-	y Avg. Consump		
potable purveyors	sumptive 5	tive 0	sumptive 5	tive 0	sumptive 4	tive 1	sumptive 5	tive 0	sumptive	tive 2	-	
domestic wells	14	0	14	1	17	6	15	1	59	8	-	80
ndustrial & commercial & mining	228	25	246	27	258	29	235	26	968	108	_	
agricultural & non- agricultural irrig	0	0	0	1	1	6	0	1	1	8		
power generation	13,258	0	13,170	0	10,313	0	9,753	0	46,494	0	-	
SOM.	13,304	20	13,433	50	10,393	42	10,000	23	47,041	120		potable domestic industrial & agriculture power purveyors wells commercial & & irrigation generation mining
Table 5. Sewage Ger	neration & Tr	ansfers [®] in	the HUC1	1 (millions	of gallons)							Figure 5. Average Sewage Gen- Fig 6. Average Treated-Effluent
generated in HUC11	1990 3	1991 4	1992 4	1993 4	1994 4	1995 4	1996 3	1997 2	1998 2	1999 3	average 3	eration & Transfers Discharge Location
imported to HUC11	0	0	0	0	0	0	0 3	0	0	0	0	a 3 +
		۷.	J	5	J	5	J	2	4	5		
Table 6 Destination	of Transad F	fluont /Da-	laimod W-	tor) Disch	armos ⁹ in 4-		villions of	nallona)				
destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	
fresh water	1 0	1 0	1 0	1 0	1 0	1 0	0 0	0 0	0 0	0 0	1 0	
brackish water	-	0	0	0	0	0	0	0	0	0	0	resh brackish salt
brackish water salt water	0	1	1	1	4	4	0	0	0	0	4	in HIG11 water water water

Water Source Water Source MGY 56,137 surface water ground water 889 total 57,025

Table 8. 1999 Water Allocations ¹⁰ in HUC11 by Water Use Group MGY Use Group agricultural 72 0 commercial industrial 2,869 irrigation 0 0 mining potable supply 0 54,084 power generation

Table 9. HUC11 Descriptive Statistics --- Area: in this HUC11 only 19.7 sq. mi. 0.0 sq. mi. 19.7 sq. mi. upstream HUC11s total watershed 18.8 sq. mi.) (this HUC11 onshore area: Population of this HUC11: Year 1940 Population Change 1,013 15.9% 1,174 1950 1960 1,337 13.9% 1,579 18.1% 1970 1980 1,858 17.7% 1990 21.6% 2,260 2000 2,602 15.1%

ie io. opsile		
ocation	#	name
downstream:	02040105090	Pequest River (below Bear Swamp)
(if any)		
upstream:		
(if any)		

2010	2,939	12.9%	est. 12
2020	3,139	6.8%	est.12
2030	3,331	6.1%	est.12

- Land Use of this HUC11:

Type	Ye	ar	Change
туре	1986	1995	Change
ag.	22.1%	20.4%	-1.6%
barren	0.3%	0.3%	0.0%
forest	55.4%	55.6%	0.2%
urban	9.9%	11.4%	1.5%
water	4.3%	4.3%	0.0%
wetlands	8.0%	8.0%	0.0%
% of this H	IUC11 in:		
Pinela	nds:	0.0%	
Highla	nds:	11.8%	

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 Disch	arge Data			Key fo	r Withd	Irawal Data		Ì	Area of Detail
1999 Treated Efflu	ent Discharge	Source		1999	Withdra	wal	Use Group		1 KAC
0 - 50 M 50 - 100 M 100 - 500 M	GY • GY • GY •	GW Confined GW Unconfined SW		No 1999 1 - 50 51 - 100	Use MGY MGY	■•^ ■ • A ■ • A	Agricultural Commercial Industrial	•	
> 500 M Other Permitted Dis	GY 🔶 scharge 🌢			101 - 500) MGY		Irrigation Mining	•	CG J
				> 500	MGY		Not Classified Potable Supply	•	No and a second
			MGY	= millions o	fgallons	per year	Power Generation		

WMA:			Upp	er Delaw	are			01				
HUC11			Upper	Pequest	River			02	20401050	70	I	
			oppor	roquoor							1	
Table 1. Freshwater ¹ Withdrawals (Q)	Withdrawal 1990	s in the HU0 1991	C11 (millio 1992	ns of gallo 1993	ns) 1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination
urface water: ² Delaware River	0	0	0	0	0	0	0	0	0	0	0	Fresh Water of Fresh Water
other sum	39 39	26 26	27 27	43 43	55 55	93 93	68 68	<u>81</u> 81	<u>81</u> 81	89 89	60 60	
confined	0 570	0 504	0 449	0 480	0 454	0 610	0 568	0 554	0 585	0 616	0	
total withdrawals:	570 609	504 530	449 476	480	454	610 703	568 636	554 636	585 666	616 705	539 599	б Баран
T-1/- 2 5				0 44 (
imports ¹¹	24 24	24 24	0m the HU 23 43	24 18	28 28 48	31 51	31 54	33 55	33 50	30 45	28	ground surface imports consump- nonconsump- exports water water tive (evaporated) tive (not
net	(19)	(20)	(20)	(24)	(20)	(20)	(23)	(22)	(17)	(15)	(20)	evaporated)
Table 3. Nonconsum	otive ⁴ & Cor	sumptive⁵	Water Use	e ⁶ in the H	UC11, by Us	e Type (mi	llions of g	allons)				
Water use otable purveyors	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Figure 3. Consumptive & Nonconsumptive Use
nonconsumptive consumptive	228 29	200 24	198 24	215 29	197 24	205 26	206 26	188 26	228 32	225 29	209 27	
omestic wells nonconsumptive consumptive	166 23	167 24	170 24	173 24	176 25	179 25	182 26	185 26	191 27	198 28	179 25	
ndustrial & commercial & ma nonconsumptive	ining 7	7	3	3	2	1	0	0	0	0	2	
consumptive gricultural & non-agricultura	1 al irrigation	1	0	0	0	0	0	0	0	0	0	б б 100
nonconsumptive consumptive	14 129	10 87	5 41	6 56	7 66	25 224	18 159	19 172	15 138	21 192	14 126	
ower generation nonconsumptive	0	0	0	0	0	0	0	0	0	0	0	
SUM: nonconsumptive	416	383	376	397	383	410	405	392	434	444	404	potable domestic industrial & agriculture power purveyors wells commercial & agriculture power
consumptive PERCENTAGES:	183	135	89	110	115	276	210	224	197	249	179	
nonconsumptive consumptive	69.5% 30.5%	73.9% 26.1%	80.9% 19.1%	78.3% 21.7%	76.8% 23.2%	59.8% 40.2%	65.9% 34.1%	63.6% 36.4%	68.8% 31.2%	64.1% 35.9%	69.3% 30.7%	
Table 4 Average Coo		Nesser		<u>Como</u>	41							
Use Group	Sonal Use Wir	ter	Spi Noncon-	ring	Sumi Noncon-	mer Consump-	ns) F	all	Yearly	y Avg.		Figure 4. Average Seasonal Consumptive Water Loss, by Use
	sumptive	tive	sumptive	tive	sumptive	tive	sumptive	tive	sumptive	tive	-	
domestic wells	41	0	42	3	52	19	44	4	179	25	-	8 80
ndustrial & commercial &	1	0	1	0	0	0	0	0	2	0		
agricultural & non-	0	1	3	25	8	76	3	25	14	126	-	
agricultural irrig.	0	0	0	0	0	0	0	0	0	0	-	
SUM:	95	1	101	32	115	113	98	33	409	179	-	potable domestic industrial & agriculture power purveyors wells commercial & & irrigation generation mining
Table 5. Sewage Gen	eration & Tra	ansfers [®] in	the HUC11	(millions	of gallons)							Figure 5. Average Sewage Gen- Fig 6. Average Treated-Effluent
generated in HUC11	1990 151	1991 120	1992 137	1993 147	1994 141	1995 131	1996 158	1997 116	1998 127	1999 131	average 136	eration & Transfers Discharge Location
imported to HUC11 exported from HUC11	2 17	2 20	2 22	2 24	2 23	2 20	2 26	2 10	2 21	2 20	2 21	в 140 +
	17	20		24	23	20	20	19	21	20		¢ 120
Table 6. Destination of destination	of Treated Ef	fluent (Rec. 1991	laimed-Wa 1992	ter) Discha 1993	nrges [®] in the 1994	HUC11 (n 1995	nillions of 1996	gallons) 1997	1998	1999	average	
fresh water	136	102	117	125	120	113	134	99	108	113	117	
salt water	0	0	0 117	0 125	0	0 0 113	0	0 0 99	0	0 0 113	0	generated imported exported fresh brackish salt

Tuble 1. 1999 Mater Alloc	anons minoornay	7	Tahle 9 Hill
Water So	ource	· · ·	4510 5. 1100
Water Source	MGY	-	Area:
surface water	242		in this HUC1
ground water	809		upstream Hl
total	1,052		total waters
		<u>(th</u>	iis HUC11 onst
Table 8. 1999 Water Alloc Water Lise	Group		Population o
Water Use Use Group	Group MGY	/	Population o Year P
Water Use Use Group agricultural	Group MGY 544	/	Population o Year P 1940
Use Group agricultural commercial	Group MGY 544 0		Population o Year P 1940 1950
Water Alloc Water Use Use Group agricultural commercial industrial	Group MGY 544 0 0		Population of Year P 1940 1950 1960
Water Alloc Water Use Use Group agricultural commercial industrial irrigation	Group <u>MGY</u> 544 0 0 74		Population of Year P 1940 1950 1960 1970
Water Alloc Water Use Use Group agricultural commercial industrial irrigation mining	Group <u>MGY</u> 544 0 74 0		Population o Year P 1940 1950 1960 1970 1980

Table 9. I	HUC11 Desc	riptive St	tatistics
Aroa.		•	
in this HI	IC11 only	E 4 7	og mi
		34.7	sq. mi.
upstream	1 HUC11s	18.3	_sq. mi.
total wa	atershed	73.0	sq. mi.
(this HUC11	onshore area:	54 7	ea mi)
(113110011	onanore area.	04.1	3q. m.)
Populatio	on of this HUC	C11:	
Year	Population	Change	
1940	2,450	-	-
1950	3,077	25.6%	
1960	4,843	57.4%	
1970	6,836	41.2%	
1980	10,569	54.6%	
1990	12,205	15.5%	
2000	13,629	11.7%	
2010	16,279	19.4%	est.12
2020	18,752	15.2%	est.12
2030	20,317	8.3%	est.12
Land Use	of this HUC	11:	

Table 10. Upstre	Table 10. Upstream and downstream HUC11s (in NJ)						
location	#	name					
downstream:	02040105090	Pequest River (below Bear Swamp)					
(if any)							
upstream:	02040105080	Bear Creek					
(if any)							
		-					

-- Land Use of this HUC11:

Type	Ye	ar	Change	
туре	1986	1995	Change	
ag.	19.9%	18.0%	-1.9%	
barren	0.4%	0.3%	-0.1%	
forest	47.5%	47.5%	-0.1%	
urban	11.5%	13.7%	2.2%	
water	2.9%	2.9%	0.0%	
wetlands	17.7%	17.6%	-0.1%	
% of this H				
Pinela	inds:	0.0%		
Highla	inds:	57.4%		

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 With	drawal Data	1	Area of Detail
1999 Treated Effluent Discha	ge Source		1999 Withdra	wal	Use Group	
0 - 50 MGY	• GW Confined		No 1999 Use	H +A	Agricultural	
50 - 100 MGY	GW Unconfined	\bigcirc	1-50 MGY	■●▲	Commercial	• 5 F.
100 - 500 MGY	♦ SW	\triangle	51-100 MGY		Industrial	• 457
> 500 MGY	•		101 - 500 MGY		Irrigation	
Other Permitted Discharge					Mining	
			> 500 MGY		Not Classified	
					Potable Supply	
		MGY	= millions of gallons	per year	Power Generation	•J V

able 7. 1999 Water Allocat Water Sour	ions [™] in HUC11 by rce	,	Table 9. I	HUC11 Desc	ript
Water Source	MGY		Area:		
surface water	0		in this Hl	JC11 only	1
ground water	37		upstream	n HUC11s	(
total	37		total wa	atershed	1
able 8. 1999 Water Allocat Water Use G	ions ¹⁰ in HUC11 by roup		(this HUC11	onshore area:	1 C11:
Use Group	MGY		Year	Population	Ch
agricultural	0		1940	565	
commercial	0		1950	625	10
industrial	0		1960	770	23
irrigation	0		1970	1,075	39
mining	0		1980	1 774	65
	0		1000	1,114	00

37

able 10. Upstre	eam and down	stream HUC11s (in NJ)
location	#	name
downstream:	02040105070	Pequest River (above/incl Bear Swamp)
(if any)		
upstream:		
(if any)		

notable supply

power generation

2010	2,917	17.5%	est.
2020	3,181	9.0%	est.12
2030	3,482	9.5%	est.12

2.193

2,482

Descriptive Statistics

0.0 18.3 sq. mi.

18.3

Change

10.6%

23.2%

39.7%

65.0%

23.6%

13.2%

18.3 sq. mi. _sq. mi.

sq. mi.

Land Use of this HUC11:

1990

2000

Type	Ye	Change				
iype	1986	1995	Gnallye			
ag.	28.3%	25.7%	-2.7%			
barren	0.2%	0.7%	0.4%			
forest	44.0%	43.8%	-0.2%			
urban	6.7%	9.2%	2.4%			
water	1.6%	1.6%	0.0%			
wetlands	19.1%	19.0%	0.0%			
% of this HUC11 in:						
Pinela	nds:	0.0%				
Highla	nds:	84.5%				

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

Key for Dis	scharge Da	ta	·		Key fo	r Withd	Irawal Data		Ì	Area of Detail
1999 Treated E	ffluent Disch	arge	Source		1999	Withdra	wal	Use Group		KA.
0 - 50	MGY	٠	GW Confined		No 1999	Use		Agricultural		1 2 th
50 - 100	MGY	•	GW Unconfined	\bigcirc	1 - 50	MGY		Commercial	•	512E
100 - 500	MGY	•	SW	\bigtriangleup	51 - 100	MGY		Industrial	•	K S T
> 500	MGY	•			101 - 500	MGY		Irrigation	•	E The
Other Permitted	Discharge							Mining		CHS SI
	J.				> 500	MGY		Not Classified		
								Potable Supply	•	The second
		\sim		MGY	= millions o	fgallons	per year	Power Generation	•	

WMA:			Upp	er Delaw	are			01				
HUC11:			Lower	Pequest	River			02	20401050	90		
Table 1. Freshwater	Withdrawals 1990	s in the HU 1991	C11 (millio 1992	ns of gallo 1993	o ns) 1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination
Delaware River	0	0 519	0 394	0	0	0 530	0 508	0	0 396	0 266	0	
sum	511	519	394	414	384	530	508	484	396	266	441	§ 3,000 +
confined unconfined	0 2.728	0 3.141	0 3.299	0 3.296	0 3.472	0 3.533	0 3.401	0 3.605	0 3.784	0 3.643	0 3.390	≥2,500 +
sum total withdrawals:	2,728	3,141 3,660	3,299	3,296 3,710	3,472 3,856	3,533	3,401 3,909	3,605	3,784 4,180	3,643 3,909	3,390 3,831	© 1,500 +
	-,	-,	-,	-, -	-,	,	-,	,	,	-,		
Table 2. Freshwater I imports ¹¹	mports To & 59	Exports Fi 61	rom the HU 60	C11 (milli 47	ons of gallor 45	is) 54	51	50	56	63	55	ground surface imports tive tive (not
exports ¹¹ net	0 59	0 61	0 60	0 47	0 45	0 54	0 51	0 50	0 56	0 63	0 55	water (evaporated) evaporated)
T-11- 0 N				6		. .						
Water use	1990	1991	1992	1993	1994	e i ype (mi 1995	1996	anons) 1997	1998	1999	average	
nonconsumptive	55	57	57	46	59	64	63	65	84	93	64	Figure 3. Consumptive & Nonconsumptive Use
omestic wells	204	0 205	200	0 212	0 217	1 220	1 222	0 225	1U 228	1∠ 222	218	3,000 +
consumptive consumptive	204 29	203	30	30	31	31	31	32	32	33	31	ğ 2,500
nonconsumptive	511 57	465 52	405 45	450 50	410 46	427 47	445 49	431 48	380 42	219 24	414 46	
ricultural & non-agricultur nonconsumptive	al irrigation 2,170	2,632	2,825	2,783	2,905	2,906	2,811	2,965	3,113	2,958	2,807	
consumptive ower generation	267	275	176	180	228	414	331	366	346	399	298	
nonconsumptive consumptive	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	
SUM: nonconsumptive	2,939	3,359	3,496	3,492	3,591	3,617	3,542	3,686	3,806	3,503	3,503	industrial & agriculture power commercial & agriculture power purveyors wells minion & irrigation generation
consumptive PERCENTAGES:	359	361	257	265	311	500	418	454	430	468	382	
consumptive	10.9%	90.3% 9.7%	93.2% 6.8%	92.9% 7.1%	92.0% 8.0%	87.9% 12.1%	89.4% 10.6%	89.0% 11.0%	89.9% 10.1%	88.2% 11.8%	90.2% 9.8%	
Table 1 Average Sa	conal ⁷ Uso	Nonconsi	umptivo 4 8	Concum	tivo ⁵ (millio	nc of gallo	nc)					
Use Group	Win	ter	Noncon-	ring	Sum	mer	F Noncon-	all	Yearl	y Avg.		Figure 4. Average Seasonal Consumptive Water Loss, by Use
	sumptive	tive	sumptive	tive	sumptive	tive	sumptive	tive 1	sumptive	tive	-	ġ 300
domestic wells	50	0	51	4	63	22	53	5	218	31	-	≦ 200 ₩ winter ≦ 200 ■ spring
mining agricultural & non-	102	11	111	12	101	11	101	11	414	46	-	¹⁵⁰ summer <u>5</u> 100 fall
agricultural irrig.	565 0	30	697 0	65 0	951	148 0	594 0	55 0	2,807	298	-	
SUM:	735	41	874	82	1,129	187	765	72	3,503	382	-	potable domestic industrial & agriculture power
												purveyors wells on mining generation
Table 5. Sewage Gen	eration & Tra	nsfers [®] in	the HUC11	(millions	of gallons)							Figure 5 Average Sewage Gen- Fig 6 Average Treated-Effluent
generated in HUC11	1990 99	1991 107	1992 114	1993 123	1994 131	1995 120	1996 140	1997 123	1998 125	1999 123	average 120	eration & Transfers Discharge Location
imported to HUC11 exported from HUC11	13 35	15 38	15 43	17 41	18 45	16 43	20 46	18 37	18 39	17 41	17 41	
											<u></u>	
Table 6. Destination	of Treated Ef	fluent (Rec	laimed-Wa	ter) Discha	arges [°] in the	HUC11 (m	nillions of	gallons)				
destination fresh water	1990 77	1991 84	1992 87	1993 99	<u>1994</u> 103	1995 93	1996 113	<u>1997</u> 104	1998 105	1999 99	average 96	
brackish water salt water	0 0	0	0	0	0 0	0	0	0	0	0	0 0	0 +
sum:	77	84	87	99	103	93	113	104	105	99	96	in HUC11 water water water

Water Source Water Source MGY surface water 1,209 ground water 4,674 total 5,883 Table 8. 1999 Water Allocations ¹⁰ in HUC11 by

Water Use Group MGY Use Group 5,203 0 agricultural commercial industrial 575 irrigation 0 0 mining 105 potable supply power generation 0

Table 9. HUC11 Descriptive Statistics --- Area: in this HUC11 only 47.4 sq. mi. <u>109.7</u> sq. mi. 157.1 sq. mi. upstream HUC11s total watershed (this HUC11 onshore area 47.4 sq. mi.) Population of this HUC11: Year 1940 Population Change 4,690 5,162 10.1% 1950 1960 6,195 20.0% 7,587 8,941 1970 22.5% 1980 17.8% 1990 11.267 26.0% 2000 13,380 18.8%

Table 10. Upstre	Table 10. Upstream and downstream HUC11s (in NJ)						
location	#	name					
downstream:	02040105110	Pophandusing Brook / Buckhorn Creek					
(if any)							
upstream:	02040105070	Pequest River (above/incl Bear Swamp)					
(if any)	02040105080	Bear Creek					
	02040105100	Beaver Brook					

201	01	5,655	17.0%	est.12
202	0 1	6,642	6.3%	est.12
203	0 1	7,557	5.5%	est.12

- Land Use of this HUC11:

Typo	Ye	Change	
туре	1986	1995	Change
ag.	18.2%	15.6%	-2.6%
barren	0.8%	1.2%	0.5%
forest	52.6%	52.3%	-0.3%
urban	10.6%	13.1%	2.5%
water	1.4%	1.4%	0.0%
wetlands	16.5%	16.5%	0.0%
% of this H	IUC11 in:		
Pinela	inds:	0.0%	
Highla	inds:	100.0%	

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	Ì	Area of Detail
1999 Treated Effluent Discharge	Source	1999 Withdrawal	Use Group	LAN
0 - 50 MGY •	GW Confined	No 1999 Use ■•▲	Agricultural 😑	2 Ed
50 - 100 MGY 🔶	GW Unconfined \bigcirc	1-50 MGY ■●▲	Commercial 🛛 🔴	Stat.
100 - 500 MGY 🔶	SW $ riangle$	51-100 MGY ■●▲	Industrial 🛛 🔴	K-SCT
> 500 MGY 🔶		101 - 500 MGY	Irrigation 🥚	
Other Permitted Discharge 🖕			Mining 📃 🔵	CHS SI
		> 500 MGY	Not Classified 📃 🔍	
			Potable Supply 📃 🔵	No.
	MG	′ = millions of gallons per year	Power Generation	

Water Source Water Source surface water 51 79 ground wate total 130 Table 8. 1999 Water Allocations ¹⁰ in HUC11 by Water Use Group MG Use Group agricultural 130 0 commercial

Table 9. HUC11 Descriptive Statistics Area in this HUC11 only 36.7 sq. mi. upstream HUC11s _sq. mi. 0.0 36.7 total watershed sq. mi. (this HUC11 onshore are 36.7 . mi Population of this HUC11: Population Change Year 1940 1.351 8.7% 1950 1,468 1960 1,737 18.3% 1970 2,300 32.4% 1980 3,109 35.2% 1990 3.790 21.9% 2000 4,254 12.2%

Table 10. Upstre	Table 10. Upstream and downstream HUC11s (in NJ)						
location	#	name					
downstream: (if any)	02040105090	Pequest River (below Bear Swamp)					
upstream:							
(if any)							

total 130

0

0

0

0

2010	4,717	10.9%	est. 🐃
2020	5,080	7.7%	est.12
2030	5,443	7.1%	est.12

Land Use of this HUC11:

Type	Ye	ar	Change
Type	1986	1995	Gnalige
ag.	33.6%	30.9%	-2.7%
barren	0.1%	0.1%	0.0%
forest	45.2%	46.0%	0.8%
urban	8.3%	10.3%	2.0%
water	1.3%	1.2%	-0.1%
wetlands	11.5%	11.6%	0.1%
% of this H	IUC11 in:		
Pinela	nds:	0.0%	
Highla	nds:	83.6%	

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

industrial

irrigation

mining potable supply

power generation

Key for Dis	scharge Da	ta	• •		Key fo	r Withc	Irawal Data		Ì	Area of Detail
1999 Treated E	ffluent Disch	arge	Source		1999	Withdra	wal	Use Group		6 AT
0 - 50	MGY	٠	GW Confined		No 1999	Use	HOA	Agricultural		L Dd
50 - 100	MGY	٠	GW Unconfined	\bigcirc	1 - 50	MGY	■●▲	Commercial	•	5172
100 - 500	MGY	•	SW	\triangle	51 - 100	MGY		Industrial	•	45/7
> 500	MGY	•			101 - 500	MGY		Irrigation	•	a trad
Other Permitted	Discharge							Mining	•	CHS SI
	, in the second s				> 500	MGY		Not Classified		
								Potable Supply	•	the start
		\sim		MGY	= millions o	fgallons	per year	Power Generation	•	

WMA:			Upp	per Delaw	are			01				
HUC11:	Pophandusing Brook / Buckhorn Creek			02	20401051	110]					
Table 4 Freebunden ¹		In in the 1111	044 (milli								1	
Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination
Delaware River	1	1	2,200	3	36	197	314	27	676	1,018	447	2,500
other sum	1	0 1	0 2,200	0 3	1 37	2 199	1 315	0 27	2 678	1,019	1 448	² ,000
ound-water: ³ confined	0	0	0	0	0	0	0	0	0	0	0	≥ g 1,500 +
unconfined	1,978	2,164	2,062	2,114	1,696	1,614	1,866	1,889	1,996	2,048	1,943	
total withdrawals:	1,978	2,164	4,262	2,114 2,116	1,696	1,614	2,181	1,889	2,674	3,068	2,390	
	_											
Table 2. Freshwater In imports ¹¹	mports To a	S Exports Fr	om the HU	JC11 (milli 4	ons of gallo 109	ns) 74	59	0	0	1	25	ground surface imports tive tive (not
exports ¹¹	852 (850)	905	869	908	591 (482)	561 (487)	625	770	884	904	787	water water (evaporated)
											/	
Table 3. Nonconsum	otive ⁴ & Co 1990	nsumptive ⁵ 1991	Water Us	e ⁶ in the H	IUC11, by U 1994	se Type (mi 1995	llions of g	allons) 1997	1998	1999	average	
table purveyors			0.540		005			050		4 07 4	700	Figure 3. Consumptive & Nonconsumptive Use
nonconsumptive consumptive	365 41	388 43	∠,516 41	392 44	385 38	496 36	624 36	352 37	43	45	40	900
nestic wells	82	83	84	85	87	88	80	٩n	Q1	Q2	87	
consumptive	12	12	12	12	12	12	13	13	13	13	12	× 600
ustriai & commercial & m nonconsumptive	ining 564	660	615	608	652	612	750	580	525	543	611	<u>ğ</u> 500
consumptive	63 al irrigation	73	68	68	73	69	88	65	59	61	69	g 400 +
nonconsumptive	0	0	0	0	0	0	0	0	0	1	0	§ 300 +
consumptive wer generation	2	2	2	2	4	3	3	3	4	5	3	
nonconsumptive	1 0	1 0	2,143 57	2	35 1	192 5	305 8	26 1	658 18	991 26	436 12	
SUM:	1 012	1 101	E 250	1 000	1 150	1 200	4 700	1 0 1 0	0.007	2.001	1.020	industrial & industrial & griculture power
consumptive	1,013	1,131	5,358 180	1,088	1,159	1,388	1,768	1,049	2,307 137	3,001	1,926	purveyors wells mining & irrigation generation
PERCENTAGES: nonconsumptive	89.6%	89.7%	96.7%	89.6%	90.1%	91.7%	92.3%	89.8%	94.4%	95.2%	93.4%	nonconsumptive consumptive
consumptive	10.4%	10.3%	3.3%	10.4%	9.9%	8.3%	7.7%	10.2%	5.6%	4.8%	6.6%	
	.7											
Table 4. Average Sea	sonal Use W	- NONCONSL inter	Sp Sp	consump pring	Sun	nns of gallo nmer	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	-	δο δ 70
potable purveyors	98	0	94	6	77	27	90	8	359	40	-	× 60 +
dustrial & commercial &	146	16	155	17	157	18	153	17	611	69	-	
mining agricultural & non-			100		107		100		011		-	
agricultural irrig.	0	0	0	1	0	1	0	1	0	12	_	
SUM:	545	24	383	29	288	55	277	28	1,493	136	-	U
												purveyors wells commercial & & irrigation generation
												in my
Table 5. Sewage Gen	eration & T	ransfers [®] in	the HUC1	1 (millions	of gallons)							Figure 5. Average Sewage Gen-
generated in ULC11	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	eration & Transfers Discharge Location
imported to HUC11	35	39	44	42	47	44	47	39	40	43	42	
exported from HUC11	62	121	105	126	144	127	130	119	122	120	118	
Table 6. Destination of	of Treated E	ffluent (Rec	laimed-Wa	ater) Discha	arges ⁹ in th	e HUC11 (m	nillions of	gallons)				
destination	1990 83	1991 93	1992 105	1993 101	1994 111	1995 106	1996 112	1997 92	1998 94	1999 101	average 100	
fresh water	0	0	0	0	0	0	0	0	0	0	0	0 +
fresh water brackish water	0		•	0	0	0	0	0	0	0	0	apported imported exported incom practicity salt
fresh water brackish water salt water sum ⁻	0 83	0 93	105	101	111	106	112	92	94	101	100	in HUC11 water water water

able I. 1000 Match Anos	outionio	
Water S	ource	
Water Source	MGY	
surface water	26,173	
ground water	2,413	
total	28,586	
	40	
Fable 8. 1999 Water Allo	cations "	in HUC11 by
Table 8. 1999 Water Allo Water Use	cations " e Group	in HUC11 by
Table 8. 1999 Water Allo Water Use Use Group	cations ¹⁰ e Group	MGY
Table 8. 1999 Water Allo Water Use Use Group agricultural	cations ¹⁰ e Group	MGY 0
Table 8. 1999 Water Allow Water Use Use Group agricultural commercial	cations [™] e Group	MGY 0 0
Table 8. 1999 Water Allo Water Use Use Group agricultural commercial industrial	cations [™] e Group	MGY 0 827
Table 8. 1999 Water Allo Water Use Use Group agricultural commercial industrial irrigation	cations [™] e Group	MGY 0 0 827 74
Table 8. 1999 Water Alloo Water Use Use Group agricultural commercial industrial irrigation mining	cations ^w e Group	MGY 0 827 74 78
Table 8. 1999 Water Allo Water Use Use Group agricultural commercial industrial irrigation mining potable supply	e Group	MGY 0 827 74 78 1,471

industrial irrigation mining potable supply power generation

Area:			
in this HL	IC11 only	28.2	sa. mi.
upstream	HUC11s	36.7	sa. mi.
total wa	tershed	64.9	sq. mi.
(this HUC11	onshore area:	27.6	sq. mi.)
Populatio	n of this HU	211:	
Year	Population	Change	
1940	6,663	-	-
1950	7,190	7.9%	
1960	7,608	5.8%	
1970	7,855	3.2%	
1980	8,228	4.8%	
1990	8,484	3.1%	
2000	8,847	4.3%	
2010	10,676	20.7%	est.12
2020	11,335	6.2%	est.12
2030	11,895	4.9%	est.12
l and llag	of this ULC		
Lanu Use		· · .	
Туре	1096	1005	 Change
07	1900	1995	2 E0/
ay.	40.4%	42.9%	-3.5%
forest	34.0%	24 2%	0.1%
urban	12 3%	1/ 2%	1.0%
wator	2 99/	2 0%	0.1%
water	2.0%	2.9%	0.1%
wonando	0.270	0.270	0.070
% of this	HUC11 in:		
Pinel	ands:	0.0%	
Highl	ands:	100.0%	

able 10. Upstre	eam and downs	stream HUC11s (in NJ)	
location	#	name	
downstream:	02040105120	Lopatcong Creek	
(if any)			
upstream:	02040105100	Beaver Brook	
(if any)			

26,136

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	i)	Area of Detail
1999 Treated Effluent Discharge	Source	1999 Withdrawal	Use Group	1 A To
0 - 50 MGY •	GW Confined	No 1999 Use ■•▲	Agricultural 😑	PL B
50 - 100 MGY 🔶	GW Unconfined \bigcirc	1-50 MGY ■●▲	Commercial 🛛 🔴	ちょうも、
100 - 500 MGY 🔶	SW $ riangle$	51-100 MGY ■●▲	Industrial 🛛 🔴	KAS A
> 500 MGY 🔶		101 - 500 MGY	Irrigation 🥚	a tra
Other Permitted Discharge 🔹			Mining 😑	CHS Y
5		> 500 MGY	Not Classified 📃 🌑	
			Potable Supply 📃 🔵	the state
	MG	Y = millions of gallons per year	Power Generation 🥚	

WMA:			Upp	er Delaw	are			01				
HUC11			Lona	atcong Cr	eek			02	20401051	120	I	
			Lobe	acong or	oon			01			1	
Table 1. Freshwater ¹	¹ Withdrawal	s in the HU	C11 (millio	ons of gallo	ons)							Fig 1 Average Source of Fig 2 Average Destination
Withdrawals (Q) surface water: ²	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Fresh Water of Fresh Water
Delaware River other	r O r O	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	
sum sum	n O	0	0	0	0	0	0	0	0	0	0	
confined	1 0 1 105	0	0	0	0	0	0	0	0 256	0	0	
sum	n 195	181	193	254	884	471	408	229	256	280	335	
total withdrawais:	195	181	193	254	884	471	408	229	256	280	335	
Table 2. Freshwater	Imports To 8	Exports Fr	om the HU	C11 (millio	ons of gallor	ıs)						
imports ¹¹ exports ¹¹	830 2	885 0	848 3	904 4	595 112	555 75	618 60	759 0	862 0	875 1	773 26	ground surface imports tive tive (evaporated) evaporated
net	828	885	846	901	483	480	557	759	862	874	747	
Table 3. Nonconsum	nptive ⁴ & Col	nsumptive ⁵	Water Use	e ⁶ in the H	UC11, by Us	e Type (mi	illions of g	allons)				
Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Figure 3 Consumptive 9 Nonconsumptive Use
nonconsumptive	e 751	797 89	770 83	819 93	745 81	638 73	668 74	682 77	775 88	787 90	743 83	
Iomestic wells		53	55	55 E A	E /	.5	, 7 EF	 EC	50	50	E A	
consumptive	e 7	7	7	8	8	8	8	8	8	8	8	
nonconsumptive	e 96	87	91	154	143	150	134	139	162	181	134	<u><u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u>
consumptive gricultural & non-agricultu	e 11 ral irrigation	10	10	18	17	17	16	17	19	22	16	ଞ 400
nonconsumptive consumptive	e 1 e 8	1 8	1 8	1 8	32 288	1 8	1 8	1 8	1 8	1 8	4 36	
nonconsumptive		0	0	0	0	0	0	0	0	0	0	
consumptive	0	0	0	0	0	0	0	0	0	0	0	
nonconsumptive	898	936	915	1,028	974	844	859	878	994	1,026	935	potable domestic commercial & agriculture power purveyors wells mining & irrigation generation
consumptive PERCENTAGES:	e 109	114	109	127	393	106	106	110	123	128	143	
nonconsumptive <u>co</u> nsumptive	e 89.1% e 10.9%	89.1% <u>10.9</u> %	89.3% <u>10.7</u> %	89.0% <u>11.0</u> %	71.2% <u>28.8</u> %	88.8% 11.2%	89.0% <u>11.0</u> %	88.9% <u>11.1</u> %	89.0% <u>11.0</u> %	88.9% <u>11.</u> 1%	86.8% 13.2%	
Table 4. Average Sea	asonal ⁷ Use	- Nonconsu	mptive ⁴ &	Consump	tive ⁵ (millio	ns of gallo	ns) ⊏	all	Vear			Figure 4. Average Seasonal Consumptive Water Loss, by Use
Use Group	Noncon-	Consump-	Noncon-	Consump-	Noncon-	Consump-	Noncon-	Consump	- Noncon-	Consump		90 m 80
potable purveyors	203	0	195	13	159	55	187	16	743	83	-	⁶ 70
domestic wells industrial & commercial &	12	0	13	1	16	5	13	1	54 134	8	-	50
mining agricultural & non-	21	ى ۱	33	4	31 2	4 25	30	4	134	20	-	
agricultural irrig. power generation	0	0	0	с 0	3 0	25 0	0	0	4	0 0	-	
SUM:	243	4	241	22	214	89	237	27	935	143	_	potable domestic industrial & agriculture power
												purveyors wells commercial & & irrigation generation mining
Table 5. Sewage Ger	neration & Tr	ansfers [®] in 1991	the HUC11 1992	1 (millions 1993	of gallons) 1994	1995	1996	1997	1998	1999	average	Figure 5. Average Sewage Gen- ration & Transfere Fig 6. Average Treated-Effluent
generated in HUC11	274	578	494	595	687	603	607	556	568	561	552	
exported from HUC11	0	204 0	0	0	0	0	0	0	0	0	0	
Table 6. Destination	of Treated E	ffluent (Rec	laimed-Wa	ter) Discha	rges ⁹ in the	HUC11 (n	nillions of	gallons)			_	й 400 +
	1990 395	1991 832	1992 711	1993 856	1994 988	1995	1996 874	1997 800	1998 818	1999 807	average 795	
destination fresh water		002		500	000	000	0.7	000	0	0.01	100	
destination fresh water brackish water	0	0	0	0	0	0	0	0	0	0	0	fresh brackish solt

	10	
Table 7. 1999 Water Allo	cations	IN HUC11 by
Water S	ource	
Water Source	MGY	
surface water	0	
ground water	1,404	
total	1,404	
Table 8. 1999 Water Allo	cations ¹⁰	in HUC11 by
Table 8. 1999 Water Alloo Water Use	cations ¹⁰ e Group	in HUC11 by
Table 8. 1999 Water Alloo Water Use Use Group	cations ¹⁰ e Group	in HUC11 by
Table 8. 1999 Water Alloo Water Use Use Group agricultural	cations ¹⁰ e Group	in HUC11 by MGY 295
Table 8. 1999 Water Alloo Water Use Use Group agricultural commercial	cations ¹⁰ e Group	in HUC11 by MGY 295 0
Table 8. 1999 Water Alloo Water Use Use Group agricultural commercial industrial	cations ¹⁰ e Group	in HUC11 by MGY 295 0 288
Table 8. 1999 Water Allo Water Use Use Group agricultural commercial industrial irrigation	cations ¹⁰ e Group	MGY 295 0 288 0
Table 8. 1999 Water Allo Water Use Use Group agricultural commercial industrial irrigation mining	cations ¹⁰ e Group	in HUC11 by MGY 295 0 288 0 338

Table 9. HUC11 Descriptive Statistics								
Area:								
in this HL	JC11 only	19.8	sq. mi.					
upstream	HUC11s	0.0	sq. mi.					
total wa	tershed	19.8	sq. mi.					
(this HUC11	onshore area:	19.5	sq. mi.)					
Populatio	n of this HUC	C11:						
Year	Population	Change	_					
1940	16,519	-						
1950	17,402	5.3%						
1960	18,263	4.9%						
1970	18,337	0.4%						
1980	18,914	3.1%						
1990	18,224	-3.6%						
2000	18,724	2.7%						
2010	21,838	16.6%	est.12					
2020	22,962	5.1%	est.12					
2030	23,806	3.7%	est.12					

location	#	name	
downstream:	02040105140	Pohatcong Creek	
(if any)			
upstream:			
(if any)			

483 0

- Land Use of this HUC11:

Turne	Ye	ar	Change
туре	1986	1995	Change
ag.	45.0%	37.4%	-7.7%
barren	0.7%	3.6%	2.9%
forest	25.1%	24.4%	-0.7%
urban	25.5%	31.0%	5.5%
water	1.5%	1.4%	0.0%
wetlands	2.2%	2.2%	0.1%
% of this H	IUC11 in:		
Pinela	nds:	0.0%	
Highla	nds:	100.0%	

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.

irrigation mining potable supply power generation

Key for Discharge Da	ita	•		Key for Witho	drawal Data		Area of Detail
1999 Treated Effluent Disc	narge	Source		1999 Withdra	wal	Use Group	LAN.
0 - 50 MGY		GW Confined		No 1999 Use	E .A	Agricultural 😑	PL Dd
50 - 100 MGY	٠	GW Unconfined	\bigcirc	1-50 MGY		Commercial 🛛 🔴	5 FE
100 - 500 MGY	•	SW	\triangle	51 - 100 MGY		Industrial 🛛 🔴	XX7
> 500 MGY	•			101 - 500 MGY		Irrigation 🥚	E The
Other Permitted Discharge	•					Mining 😑	CIS SI
				> 500 MGY		Not Classified 📃 🌑	
						Potable Supply 📃 🔵	A A A
			MGY	= millions of gallons	per year	Power Generation 🥚	Л

			Upp	er Delaw	are			01				
HUC11:			Poha	itcong Ci	reek			02	20401051	140	I	
Table 1 Frashwater	¹ Withdrawa	s in the UU	C11 (millio	and of gally	202)							
Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination
Delaware River	r O	0	0	0	0	0	0	0	0	0	0	
other sum	r 20 n 20	0	<u>5</u>	8	3	<u>6</u> 6	2	3	1 1	192 192	24 24	
ound-water: 3	4 O	0	0	0	0	0	0	0	0	0	0	500
unconfined	558	588	604	608	605	630	619	559	611	883	627	
total withdrawals:	n 558 578	588	<u>604</u> 608	608	605 608	630	619 621	563	611 612	1,075	627 651	
Table 2. Freshwater	Imports To &	Exports Fi	om the HU	C11 (milli	ons of gallon	is)			105	105		
exports ¹¹	227 66	231 72	243 69	248 70	257 71	237 73	219 70	233 66	195 65	105 69	219 69	ground surface imports tive (evaporated) tive (not water water evaporated)
net	161	159	174	179	186	164	148	167	130	36	150	
Table 3. Nonconsum	nptive ⁴ & Co	nsumptive⁵	Water Use	e ⁶ in the H	IUC11, by Us	e Type (mil	lions of g	allons)				
Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	Figure 2 Consumptive 9 Newspacementing Use
nonconsumptive	e 381	399	393	401	399	392	375	364	367	557	403	Figure 3. Consumptive & Nonconsumptive Use
consumptive mestic wells	2 44	47	45	47	45	44	42	50	44	48	45	
nonconsumptive consumptive	e 162 e 23	164 23	169 24	173 24	177 25	180 25	181 25	183 26	185 26	187 26	176 25	
dustrial & commercial & n	nining	104	101	112	115	115	106	04	107	272	105	≥ 300 +
consumptive	e 99	104	121	13	13	13	12	94 10	107	13	125	
ricultural & non-agricultur nonconsumptive	ral irrigation	0	2	2	2	3	3	0	0	0	1	
consumptive	e 18	0	16	22	18	27	26	3	1	1	13	
nonconsumptive	e 0	0	0	0	0	0	0	0	0	186	19	50
SUM:		0			0	0	0	0	0	5	0	potable domestic commercial & agriculture power
nonconsumptive consumptive	e 644 e 95	666 81	684 98	689 106	693 101	690 110	665 105	641 89	659 83	1,204 93	724 96	purveyors wells mining & irrigation generation
PERCENTAGES: nonconsumptive	e 87.1%	89.1%	87.5%	86.7%	87.3%	86.3%	86.4%	87.8%	88.8%	92.8%	88.3%	nonconsumptive consumptive
consumptive	e 12.9%	10.9%	12.5%	13.3%	12.7%	13.7%	13.6%	12.2%	11.2%	7.2%	11.7%	
Table 4 Average Ca		Nanaana		0	41							
Table 4. Average Sea	Wi	- Nonconsi nter	Spr	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		δ ³ 40 +
potable purveyors	101 40	0	100	7	89 51	31 18	95 43	8	384	45 25	-	× [∞] ² 30 +
Idustrial & commercial &	30	3	34	3	35	3	26	3	125	12	-	
agricultural & non-	0	0	0		1	8	0	1	1	13	-	
agricultural irrig.	9	0	0		0	0	10	0	19	0	-	
SUM:	179	3	176	16	176	60	174	16	705	96	-	potable domestic industrial & agriculture power
												purveyors wells commercial & & irrigation generation mining
Table 5. Sewage Ger	neration & Tr	ansfers ⁸ in	the HUC11	1 (millions	of gallons)							Figure 5 Average Sewage Gen-
apported in LUCCC	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	eration & Transfers Discharge Location
imported to HUC11	215	2	2	2	402 3	2	2	2	2	2	2	
exported from HUC11	72	147	127	152	175	154	156	143	146	144	142	§ 300 +
Table 6. Destination	of Treated E	ffluent (Rec	laimed-Wat	ter) Discha	arges [°] in the	HUC11 (m	illions of	gallons)				
destination	1990 205	<u>1991</u> 220	<u>1992</u> 226	<u>1993</u> 259	1994 290	1995 253	1996 261	1997 216	1998 248	1999 201	average 238	
fresh water	1	0	0	0	0	0	0	0	0	0	0	0 +
fresh water brackish water	0	0	0	0	0	~	~ ~			~ ~	0	indent brachten eine

Water Source		MGY
surface water		26,173
ground water		714
	total	26,887

	Table 8. 1999 Water Allocations ¹⁰ Water Use Group	in HUC11 by
	Use Group	MGY
Г	agricultural	48
	commercial	0
	industrial	177
	irrigation	37
	mining	0
	potable supply	489

power generation

Table 9. I	HUC11 Desc	riptive St	tatistics
Area:			
in this HU	JC11 only	58.1	sq. mi.
upstream	HUC11s	0.0	sq. mi.
total wa	tershed	58.1	sq. mi.
(this HUC11	onshore area:	58.0	sq. mi.)
Populatio	on of this HUC	C11:	
Year	Population	Change	
1940	10,745	-	-
1950	11,427	6.3%	
1960	14,257	24.8%	
1970	16,050	12.6%	
1980	18,105	12.8%	
1990	19,206	6.1%	
2000	21,740	13.2%	
2010	26,477	21.8%	est.12
2020	28,356	7.1%	est.12
2030	30,038	5.9%	est.12

able 10. Upstre	eam and down	stream HUC11s (in NJ)
location	#	name
downstream:	02040105150	Musconetcong River (above Trout Brook)
(if any)		
upstream:		
(if any)		

26,136

-- Land Use of this HUC11:

Type	Ye	ar	Change
iype	1986	1995	Change
ag.	36.9%	33.5%	-3.5%
barren	0.7%	0.4%	-0.2%
forest	41.8%	40.6%	-1.2%
urban	12.6%	15.9%	3.3%
water	0.8%	2.5%	1.7%
wetlands	7.3%	7.1%	-0.1%
- % of this H	IUC11 in:		
Pinela	nds:	0.0%	
Highla	nds:	100.0%	

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 or by the equation in the decision in the decision of the most set of the set

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	a	•		Key fo	r Witho	drawal Data		Ì	Area of Detail
1999 Treated Ef	fluent Discha	arge	Source		1999	Withdra	wal	Use Group		LA.
0 - 50	MGY	•	GW Confined		No 1999	Use	H *A	Agricultural	•	27 th
50 - 100	MGY	٠	GW Unconfined	\bigcirc	1 - 50	MGY		Commercial	•	SAT T
100 - 500	MGY	٠	SW	Δ	51 - 100	MGY		Industrial	•	The second
> 500	MGY	•			101 - 500	MGY		Irrigation		
Other Permitted	Discharge	•						Mining	•	K K K K
					> 500	MGY		Not Classified		
								Potable Supply		
				MGY	= millions o	fgallons	per year	Power Generation	•	U

Interf Upper Musiconeticing River Decomposition Table 1. Prostmeter 1000 100 100 100 100 100 100 100 100 10	WMA:			Upp	er Delaw	are			01				
Table 1: Final wave	HUC11:		ι	Jpper Mu	sconetco	ong River			02	20401051	50	1	
Table 1. Final for the UCT 1 million of equiling Table 1. Final 1. Table 1. Tabl												4	
Table Name: Description Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>	Table 1. Freshwater ' Withdrawals (Q)	Withdrawa 1990	ls in the HU 1991	1992 1992	ns of gallo 1993	o ns) 1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination
$\frac{1}{1000} = \frac{1}{200} = \frac{200}{20} = \frac{104}{100} = \frac{1}{200} = $	urface water: 2 Delaware River	0	0	0	0	0	0	0	0	0	0	0	4,000 Fresh Water of Fresh Water
Total at all states of the state of the MAD1 (selices of galaxy) Total at all states of the states of the MAD1 (selices of galaxy) Total at all states of the states of the MAD1 (selices of galaxy) Total at all states of the states of the MAD1 (selices of galaxy) Total at all states of the states of the states of the MAD1 (selices of galaxy) Total at all states of the states of the states of the MAD1 (selices of galaxy) Total at all states of the states of the MAD1 (selices of galaxy) Total at all states of the states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total at all states of the MAD1 (selices of galaxy) Total states of the mAD1 (selices of galaxy) <	other sum	320 320	209 209	194 194	200	284 284	226 226	152 152	218 218	193 193	198 198	219 219	
$\frac{ _{1} $	round-water: 3	0	0	0	0	0	0	0	0	0	0	0	§
$\frac{1}{1000} = \frac{1}{100} + 1$	unconfined	1,933	2,235	2,384	2,618	3,789	3,909	3,938	4,103	4,134	4,993	3,404	
Table 3. Provinsion reports 1 of 5. Sports From the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the MUCCT (pullings of palling) The function of palling in the functin of palling in the function of palling in the function of palli	total withdrawals:	2,253	2,235	2,579	2,818	4,073	4,135	4,090	4,321	4,328	<u>4,993</u> 5,191	3,623	
integring 473 471 375 401 432 527 455 547 455 457 455 457 455 457 455 457 455 457 455 457 455 457 455 457 457 455 457 457 455 457 457 455 457 153	Table 2. Freshwater I	mports To &	Exports Fr	om the HU	C11 (millio	ons of gallor	ıs)						
frage 385 80 75 26 25 70 185 70 185 70 185 Table 3. Anconcessingthor 4 6 consistent profile 100	imports ¹¹ exports ¹¹	476 111	417 328	395 316	404 188	434 409	476 405	488 303	452 354	558 323	547 277	465 301	ground surface imports consump- nonconsump- exports water water (evanocrated) evanocrated)
Table 3. Anonconsumplie** 4. Consumptive** 4. Consumptive** 4. Consumptive** Water Use************************************	net	365	90	78	216	25	70	185	98	234	270	163	
Image of the rank in the rank i	Table 3. Nonconsum	ntive ⁴ & Co	nsumptive ⁵	Water I Isa	⁶ in the H	UC11. hv lle	e Type (mi	illions of o	allons)				
Answer provision Provantation Provision Provi	Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	
Description of NamePore 140 152 142 154 155 156 166 146 146 153 153 153 meansample 660 010 010 010 010 010 101 101 103	nonconsumptive	1,256	1,315	1,268	1,286	1,359	1,391	1,303	1,270	1,358	1,345	1,315	Figure 3. Consumptive & Nonconsumptive Use
Image: consumptive consumptive consumptive spectrum 689 681 687 701 707 711 715 719 725 731 710 7	consumptive omestic wells	140	152	142	154	156	166	146	146	163	163	153	1,400 +
during difference difference<	nonconsumptive	689 97	691 97	697 98	701 99	707 100	711 100	715 101	719 101	725 102	731 103	709 100	g 1,200
International model Ave Cost International Internaternational <td>dustrial & commercial & m</td> <td>ining</td> <td>245</td> <td>200</td> <td>601</td> <td>1 550</td> <td>1 602</td> <td>1 755</td> <td>1 005</td> <td>1 0 2 0</td> <td>2 726</td> <td>1 217</td> <td>≥ 1,000 + 1,0</td>	dustrial & commercial & m	ining	245	200	601	1 550	1 602	1 755	1 005	1 0 2 0	2 726	1 217	≥ 1,000 + 1,0
Table 4. Average Seasonal Consumptive 4.0 0 2.1 1.7 1.7%	consumptive	50	33	53	94	211	218	239	258	262	373	179	
consumptive generation monoconsumptive support 6 0 9 9 14 15 15 18 21 9 11 monoconsumptive support 0	gricultural & non-agricultur nonconsumptive	al irrigation 1	0	1	1	2	2	2	2	2	1	1	
Importangempting 0	consumptive ower generation	6	0	9	9	14	15	15	18	21	9	11	
Strikt Octo O	nonconsumptive	0	0	0	0	0	0	0	0	0	0	0	
International consumptive predictions 2.51 2.23 2.62 3.63 3.74 3.75 3.68 1.91 4.81 3.42 443 PERCENTACE 2.63 2.64 640 660 600 601 641 443 443 PERCENTACE 2.63 8.87% 88.3% 88.3% 88.3% 88.3% 88.3% 88.3% 88.3% 88.3% 88.3% 88.3% 88.3% 88.3% 88.3% 81.3% 88.3% 81.3% 88.3% 81.3% 81.3% 88.3% 81.3%	SUM:	2 214	0.051	0.055	0.070	2.010	2 700	0.775	2 000	4 01 4	4 012	2.242	industrial & agriculture power
PERCINATE: Description B8.9% B8.9% B8.9% B8.9% B8.9% Description Description <thdescription< th=""> <thdescription< th=""> <</thdescription<></thdescription<>	consumptive	2,314 293	282	302	355	480	499	500	524	4,014 548	648	443	purveyors wells mining & irrigation generation
consumptive 11.2% 11.1% 11.2%	PERCENTAGES: nonconsumptive	88.8%	88.9%	88.6%	88.3%	88.3%	88.1%	88.3%	88.2%	88.0%	88.1%	88.3%	nonconsumptive consumptive
Table 4. Average Seasonal ⁷ Use - Nonconsumptive ⁴ & Consumptive ⁶ (millions of gallons). <u>Writer</u> Noncon-Consumptive <u>Noncon-Consumptive tive</u> <u>sumptive</u> tive <u>sumpt</u>	consumptive	11.2%	11.1%	11.4%	11.7%	11.7%	11.9%	11.7%	11.8%	12.0%	11.9%	11.7%	
The second of the sec	Table 4 Average Sea	sonal ⁷ Use	- Nonconsu	mntive ⁴ &	Consumn	tive ⁵ (millio	ns of gallo	ns)					
Under structure Contractive Volitative V		Wi	nter	Sp	ring	Sum	mer	F	all	Yearl	y Avg.		Figure 4. Average Seasonal Consumptive Water Loss, by Use
postelic purveyors 351 0 345 237 121 206 72 173 16 153 domestic wells fis3 0 167 12 206 72 173 16 153 mining 233 32 299 41 373 51 412 56 1,317 179 agricultural & commercial & 233 32 299 41 373 51 412 56 1,317 179 ower generation 0 0 2 1 7 0 3 1 11 power generation 0	Use Gloup	sumptive	tive	sumptive	tive	sumptive	tive	sumptive	tive	sumptive	tive	_	50 150
Industrial & commercial & 233 32 299 41 373 51 412 56 1.317 179 agricultural ing. 0 0 2 1 7 0 3 1 11 power generation 0 <	domestic wells	351 163	0	345 167	23 12	297 206	103 72	323 173	27 16	1,316 709	153 100	_	vinter
agricultural infinition: 0 0 2 1 7 0 3 1 11 agricultural infinition: 0	ndustrial & commercial & mining	233	32	299	41	373	51	412	56	1,317	179		
Divergeneration 0	agricultural & non-	0	0	0	2	1	7	0	3	1	11	_	
Souri. 1 <td>power generation</td> <td>0</td> <td>_</td> <td></td>	power generation	0	0	0	0	0	0	0	0	0	0	_	
Table 5. Sewage Generation & Transfers ⁴ in the HUC11 (millions of gallons) Figure 5. Average Sewage Generation & Transfers ⁴ in the HUC11 (millions of gallons) generated in HUC11 351 388 397 395 507 491 549 481 454 467 448 exported from HUC11 361 388 397 395 507 491 549 459 448 4485 exported from HUC11 341 355 384 498 489 548 480 453 466 438 Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges ⁹ in the HUC11 (millions of gallons) exported from HUC11 average average average destination 1990 1991 1992 1993 1996 1997 1998 1999 average fresh water 0 <t< td=""><td>SUM:</td><td>746</td><td>32</td><td>811</td><td>78</td><td>878</td><td>232</td><td>908</td><td>102</td><td>3,343</td><td>443</td><td></td><td>potable domestic industrial & agriculture power</td></t<>	SUM:	746	32	811	78	878	232	908	102	3,343	443		potable domestic industrial & agriculture power
Figure 5. Sewage Generation & Transfers [#] in the HUC11 (millions of gallons): Figure 5. Sewage Generation & Transfers [#] in the HUC11 (millions of gallons): generated in HUC11 351 388 397 395 507 491 549 481 454 467 448 imported to HUC11 161 386 340 436 512 499 585 559 676 691 485 caported from HUC11 161 386 340 438 486 691 485 destination of Treated Effluent (Reclaimed-Water) Discharges ⁹ in the HUC11 (millions of gallons): average destination 1990 1991 1992 1993 1996 1997 1998 1999 average brackish water 171 420 373 447 521 501 586 560 677 681 495 stati water 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0													purveyors weils chingauon generation mining
Table 5. Sewage Generation & Transfers ⁹ in the HUC11 (millions of gallons) 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 average generated in HUC11 351 388 397 395 507 491 549 481 454 467 448 exported from HUC11 161 386 340 436 512 499 555 559 676 691 485 eration & Transfers Fig. 6. Average Sewage Generation & Transfers Fig. 6. Average Location Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges ⁹ in the HUC11 (millions of gallons) destination 1990 1991 1992 1993 1995 1996 1997 1998 1999 average fresh water 171 420 373 447 521 501 586 560 677 691 495 salt water 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0													
Table 5. Sewage Generation & Transfers* in the HUC11 (millions of gallons) 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 average generated in HUC11 161 388 397 395 507 491 549 481 466 448 exported to HUC11 161 386 340 436 512 499 585 559 676 691 485 exported from HUC11 341 355 365 384 489 548 480 453 466 438 fresh water 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 average fresh water 171 420 373 447 521 501 586 560 677 691 495													
generated in HUC11 351 388 397 395 507 491 549 481 457 446 485 imported to HUC11 161 386 340 436 512 499 585 559 676 691 485 exported from HUC11 341 355 365 384 498 489 548 480 453 466 438 destination 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 average fresh water 171 420 373 447 521 501 586 560 677 691 495 sum: 171 420 373 4447 521 501 586 560 677 691 495 sum: 171 420 373 4447 521 501 586 560 677 691 495 sum: 171 420 373 4447 521 501 586 560 677 691	Table 5. Sewage Gen	eration & Tr 1990	ansfers [®] in 1991	the HUC11 1992	1 (millions 1993	of gallons) 1994	1995	1996	1997	1998	1999	average	Figure 5. Average Sewage Gen- eration & Transfore Fig 6. Average Treated-Effluent
Imported to HOCTT 101 300 340 430 312 433 503 503 600 691 403 exported from HUC11 341 355 365 384 498 489 548 480 453 466 438 Table 6. Destination Treated Effluent (Reclaimed-Water) Discharges ⁹ in the HUC11 (millions of gallons) V	generated in HUC11	351	388	397	395	507	491	549	481	454	467	448	
Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges ⁹ in the HUC11 (millions of gallons) destination 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 average fresh water 171 420 373 447 521 501 586 560 677 691 495 salt water 0 0 0 0 0 0 0 0 0 0 0 sum: 171 420 373 447 521 501 586 560 677 691 495 100 100 100 100 100 0 <th< td=""><td>exported from HUC11</td><td>341</td><td>360 355</td><td>340 365</td><td>430 384</td><td>498</td><td>499 489</td><td>565 548</td><td>480</td><td>453</td><td>466</td><td>403</td><td></td></th<>	exported from HUC11	341	360 355	340 365	430 384	498	499 489	565 548	480	453	466	403	
Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges ⁹ in the HUC11 (millions of gallons) destination 1990 1991 1992 1993 1995 1996 1997 1998 1999 average fresh water 171 420 373 447 521 501 586 560 677 691 495 0													
destination 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 average fresh water 171 420 373 447 521 501 586 560 677 691 495 brackish water 0 0 0 0 0 0 0 0 0 salt water 0 <td>Table 6. Destination</td> <td>of Treated F</td> <td>ffluent (Rec</td> <td>aimed-Wa</td> <td>ter) Discha</td> <td>raes⁹ in the</td> <td>HUC11 (n</td> <td>nillions of</td> <td>gallons)</td> <td></td> <td></td> <td></td> <td></td>	Table 6. Destination	of Treated F	ffluent (Rec	aimed-Wa	ter) Discha	raes ⁹ in the	HUC11 (n	nillions of	gallons)				
Itesti water 171 420 373 447 521 501 580 500 677 691 495	destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	[∰] 100 − − − − − − − − − − − − − − − − − − −
salt water 0	tresh water brackish water	1/1 0	420 0	373 0	447 0	521 0	501 0	586 0	560 0	677 0	691 0	495 0	
	salt water	0	0	0	0	0	0	0	0	0	0	0 495	generated imported exported rresn brackisn salt in HIIC11 water water water

Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source Water Source MGY 313 surface water ground water 4,630 4,630 total 4,943

Table 8. 1999 Water Allocations¹⁰ in HUC11 by Water Use Group MGY Use Group 131 0 0 37 agricultural commercial industrial irrigation mining 2,857 potable supply 1,918 power generation 0

Table 9. l	HUC11 Desc	riptive S	tatistics
Area:			
in this Hl	JC11 only	81.6	sq. mi.
upstream	n HUC11s	0.0	sq. mi.
total wa	atershed	81.6	sq. mi.
(this HUC11	onshore area:	81.6	sq. mi.)
Populatic	on of this HUC	C11:	
Year	Population	Change	_
1940	8,962	-	
1950	11,890	32.7%	
1960	20,135	69.3%	
1970	40,551	101.4%	
1980	56,396	39.1%	
1990	58,061	3.0%	
2000	63,093	8.7%	

location	#	name
downstream:	02040105160	Musconetcong River (below incl Trout Bk
(if any)		
upstream:		
(if any)		

2010	66,819	5.9%	est.12
2020	68,896	3.1%	est.12
2030	71,797	4.2%	est.12

- Land Use of this HUC11:

Type	Ye	Change			
Type	1986	1995	Change		
ag.	2.0%	1.8%	-0.3%		
barren	1.5%	1.5%	0.0%		
forest	60.4%	58.5%	-2.0%		
urban	19.3%	21.6%	2.3%		
water	7.9%	8.0%	0.1%		
wetlands	8.9%	8.7%	-0.2%		
% of this H	IUC11 in:				
Pinela	inds:	0.0%			
Highla	ands:	100.0%			

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)	Area of Detail	
1999 Treated Effluent Discharge	Source	1999 Withdrawal	Use Group	
0 - 50 MGY •	GW Confined	No 1999 Use ■●▲	Agricultural 😑	
50 - 100 MGY 🔶	GW Unconfined 🔾	1-50 MGY ■●▲	Commercial 🛛 🔴	5752
100 - 500 MGY 🔶	SW 🛆	51-100 MGY ■●▲	Industrial 📃 😑	KSC -
> 500 MGY 🔶		101 - 500 MGY	Irrigation 🥚 🥚	
Other Permitted Discharge 🔹			Mining 😑	KIX Y
9		> 500 MGY	Not Classified 🛛 🌑	
			Potable Supply 📃 🔵	
	MG`	ℓ = millions of gallons per year	Power Generation 🛛 😑	U U

WMA:			Upp	er Delaw	are			01				
HUC11:		L	_ower Mu	sconetco	ong River			02	20401051	60		
Table 1. Freshwater ¹ Withdrawals (Q)	Withdrawal 1990	s in the HU 1991	C11 (millio 1992	ns of gallo 1993	o ns) 1994	1995	1996	1997	1998	1999	average	Fig 1. Average Source of Fig 2. Average Destination
urface water: ² Delaware River	0	0	0	0	0	0	0	0	0	0	0	Fresh Water of Fresh Water
other	47,047	35,651	28,012	20,950	21,964	31,319	30,264	26,119	39,811	30,382	31,152	60,000
round-water: ³	47,047	35,651	20,012	20,950	21,904	31,319	30,204	20,119	39,011	30,362	51,152	§ 50,000
confined unconfined	0 1,603	0 1,680	0 1,594	0 1,442	0 1,529	0 1,479	0 1,430	0 1,457	0 1,555	0 1,750	0 1,552	
sum total withdrawals:	1,603 48,649	1,680 37,331	1,594 29,607	1,442 22,392	1,529 23,493	1,479 32,798	1,430 31,695	1,457 27,576	1,555 41,366	1,750 32,132	1,552 32,704	
Table 2. Freshwater Ir	nports To 8	Exports Fr	om the HU	C11 (milli	ons of gallor	ıs)						
imports ¹¹	101 477	85 558	80 563	89 568	93 577	96 558	88 534	98 527	100 505	97 410	93 528	ground surface imports consump- nonconsump- exports tive tive (not
net	(376)	(473)	(483)	(479)	(484)	(462)	(447)	(429)	(405)	(313)	(435)	(evaporated) evaporated)
Table 3 Nonconsum	tive ⁴ 8 Co	nsumptive ⁵	Water Lise	⁶ in the H	UC11 by Us	o Typo (mi	llions of a	allone)				
Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	
otable purveyors nonconsumptive	47,438	35,988	28,244	21,192	22,211	31,565	30,513	26,369	40,063	30,785	31,437	Figure 3. Consumptive & Nonconsumptive Use
consumptive	40	38	27	29	29	29	27	29	31	57	33	30,000
nonconsumptive consumptive	262 37	264 37	269 38	275 39	282 40	286 40	289 41	293 41	297 42	303 43	282 40	8 25,000 -
dustrial & commercial & mi	ining 123	454	467	316	378	350	316	3/10	450	520	403	≥ 20,000
consumptive	47 47	50	52	35	42	39	35	39	50	60	45	କୁ ଓ 15,000 –
nonconsumptive consumptive	3 24	3 24	3 24	3 25	3 24	3 24	3 25	3 25	3 25	3 25	3 24	₩ 10,000
ower generation nonconsumptive	47,047	35,651	28,012	20,946	21,959	31,317	30,263	26,119	39,811	30,367	31,149	5,000
consumptive SUM:	0	0	0	0	0	0	0	0	0	0	0	0 domestic industrial & agriculture power
nonconsumptive consumptive	95,172 148	72,359 150	56,995 141	42,732 128	44,833 135	63,521 133	61,384 127	53,132 133	80,625 147	61,988 184	63,274 143	purveyors wells mining & irrigation generation
PERCENTAGES: nonconsumptive	99.8%	99.8%	99.8%	99.7%	99.7%	99.8%	99.8%	99.7%	99.8%	99.7%	99.8%	■ nonconsumptive ■ consumptive
consumptive	0.2%	0.2%	0.2%	0.3%	0.3%	0.2%	0.2%	0.3%	0.2%	0.3%	0.2%	
Table 4. Average Seas	sonal ⁷ Use	- Nonconsu	ımptive⁴ &	Consump	tive⁵ (millio	ns of gallo	ns)					
Use Group	Wi Noncon-	nter Consump-	Spi Noncon-	ring Consump-	Sum Noncon-	mer Consump-	F Noncon-	all Consump-	Yearl Noncon-	y Avg. Consump-		⁵⁰
notable purvevors	sumptive	tive	sumptive	tive	sumptive	tive	sumptive	tive	sumptive	tive		₩ 40 +
domestic wells	65	0	66	5	82	29	69	6	282	40		² 30 + 2 30 + 2 spring
ndustrial & commercial & mining	98	11	100	11	102	11	103	11	403	45		ଞ 20
agricultural & non- agricultural irrig.	0	1	0	3	2	17	0	4	3	24		
power generation SUM:	8,491 8,731	0 11	10,037 10,281	0 24	6,863 7,114	0 79	5,759 6,000	0 28	31,149 32,126	0 143		
												potable domestic industriat agriculture power purveyors wells commercial & & irrigation generation mining
Table 5 Sources Cons	votion 9 Tr	anoforo ⁸ in		(milliono	of gollong)							
Table 5. Gewage Cent	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average	eration & Transfers Discharge Location
imported to HUC11	226 347	254 362	256 372	391	341 507	335 498	374 558	335 489	330 462	337 475	306 446	
exported from HUC11	16	33	30	37	44	42	49	47	56	57	41	
Table 6. Destination o	f Treated E	fluent (Rec	laimed-Wa	ter) Discha	arges ⁹ in the	HUC11 (m	nillions of	gallons)	4000	4000	1	
destination fresh water	1990 558	1991 582	1992 598	1993 625	1994 805	1995 791	1996 882	1997 778	1998 735	1999 756	average 711	≥ 100 +
brackish water	0	0	0	0	0	0	0	0	0	0	0	reperated imported exported fresh brackish salt
salt water	v				005	701	882	778	735	756	711	generated imported exported water water water

Water S									
Water Source									
surface water	107,876								
ground water									
total	111,596								
Table 8, 1999 Water Allocations ¹⁰ in HUC11 by									

Table 0. 1999 Water Anocations	III IIOCI I Dy
Water Use Group	-
Use Group	MGY
agricultural	304
commercial	37
industrial	1,951
irrigation	0
mining	0
potable supply	1,485
power generation	107,820

Table 10. Upstream and downstream HUC11s (in NJ)								
location	#	name						
downstream:	02040105170	Hakihokake/Harihokake/Nishisakawick Ck						
(if any)								
upstream:	02040105150	Musconetcong River (above Trout Brook)						
(if any)								

total 111

2010	25,710	12.2%	est.12
2020	26,597	3.4%	est.12
2030	27,811	4.6%	est.12

- Land Use of this HUC11:

Tuno	Ye	Change	
Type	1986	1995	Change
ag.	39.2%	35.6%	-3.7%
barren	0.2%	0.5%	0.3%
forest	39.7%	39.7%	0.0%
urban	13.8%	17.3%	3.5%
water	0.8%	0.8%	0.0%
wetlands	6.3%	6.2%	-0.1%
% of this H	IUC11 in:		
Pinela	inds:	0.0%	
Highla	inds:	100.0%	

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 Dis	scharge Da	Data Key				r Withc	Irawal Data		- 11	Area of Detail
1999 Treated E	ffluent Disch	narge	Source		1999	Withdra	wal	Use Group		KAC
0 - 50	MGY	•	GW Confined		No 1999	Use	HOA	Agricultural		The the
50 - 100	MGY	٠	GW Unconfined	\bigcirc	1 - 50	MGY		Commercial	•	S ZZ
100 - 500	MGY	•	SW	\triangle	51 - 100	MGY		Industrial	•	KS T
> 500	MGY	•			101 - 500	MGY		Irrigation		A The
Other Permitted	Discharge	•						Mining	•	CH Y
	J				> 500	MGY		Not Classified		EXX X
								Potable Supply	•	
				MGY	= millions o	fgallons	per year	Power Generation	<u> </u>	V