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

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

Let's protect our earth

NEW JERSEY DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Water Withdrawals, Transfers and Discharges for SHIMERS BROOK / CLOVE BROOK --- 02040104090

WMA:	**Upper Delaware**	**01**
HUC11:	**Shimers Brook / Clove Brook**	**02040104090**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	0	0	0	0	0	0	0	0	0	0	0
sum	0	0	0	0	0	0	0	0	0	0	0
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	38	95	97	114	107	105	95	108	88	99	95
sum	38	95	97	114	107	105	95	108	88	99	95
total withdrawals:	38	95	97	114	107	105	95	108	88	99	95

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	0	2	3	3	3	3	2	2	2	2	2
exports[11]	0	0	0	0	0	0	0	0	0	0	0
net	0	2	3	3	3	3	2	2	2	2	2

Fig 1. Average Source of Fresh Water

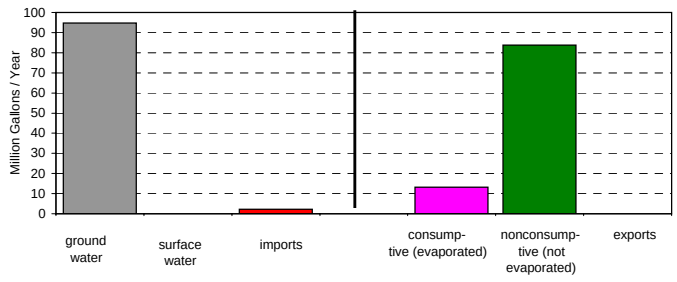

Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	0	49	54	66	62	59	51	60	43	51	50
consumptive	0	10	7	12	9	9	7	10	6	8	8
domestic wells											
nonconsumptive	33	33	33	34	34	34	35	35	35	36	34
consumptive	5	5	5	5	5	5	5	5	5	5	5
industrial & commercial & mining											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrigation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	1	0	1	0	1	0	1	1	1	1
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	33	82	88	100	96	93	86	95	79	87	84
consumptive	5	16	12	17	14	15	12	16	12	14	13
PERCENTAGES:											
nonconsumptive	86.6%	84.0%	88.0%	85.4%	87.4%	86.0%	87.9%	85.6%	86.9%	86.2%	86.4%
consumptive	13.4%	16.0%	12.0%	14.6%	12.6%	14.0%	12.1%	14.4%	13.1%	13.8%	13.6%

Figure 3. Consumptive & Nonconsumptive Use

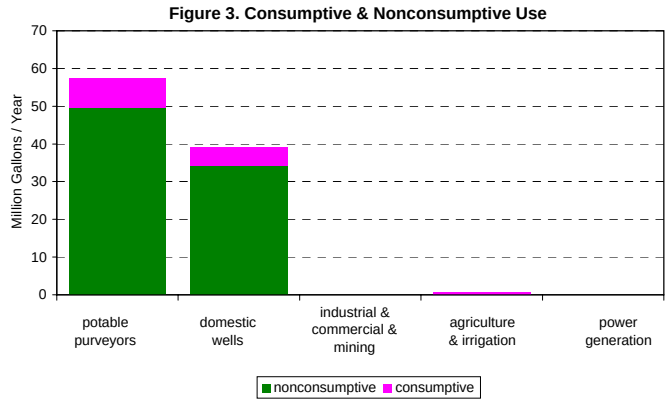

Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	10	0	10	1	16	6	13	1	50	8
domestic wells	8	0	8	1	10	3	8	1	34	5
industrial & commercial & mining	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrig.	0	0	0	0	0	0	0	0	0	1
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	17	0	19	2	26	10	22	2	84	13

Figure 4. Average Seasonal Consumptive Water Loss, by Use

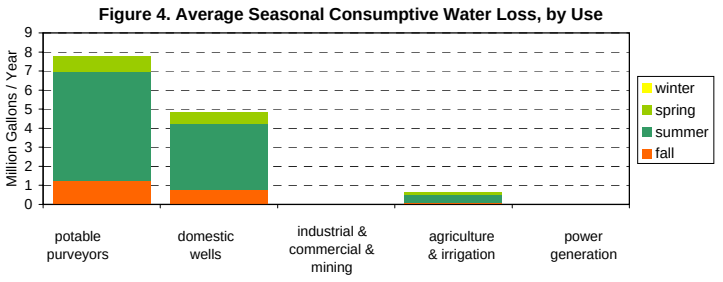

Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	0	0	0	0	0	0	0	0	0	0	0
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0

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	0	0	0	0	0	0	0	0	0	0	0
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	0	0	0	0	0	0	0	0	0	0	0

Figure 5. Average Sewage Generation & Transfers

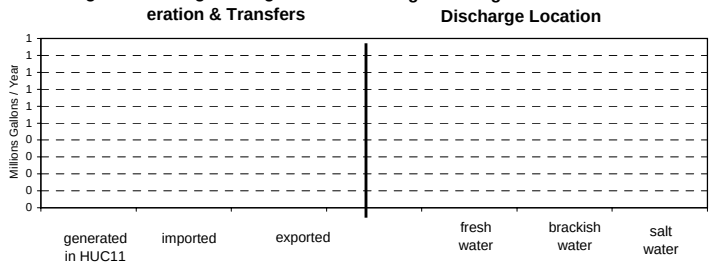

Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	0
ground water	101
total	101

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	0
commercial	0
industrial	0
irrigation	37
mining	0
potable supply	64
power generation	0
total	101

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	22.8	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	22.8	sq. mi.
(this HUC11 onshore area:	22.3	sq. mi.)

--- Population of this HUC11:

Year	Population	Change	
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 of this HUC11:

Type	Year		Change
	1986	1995	
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:

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040104110	Walpack Bend / Montague Riverfront
(if any)		
upstream:	--	--
(if any)	--	--
	--	--
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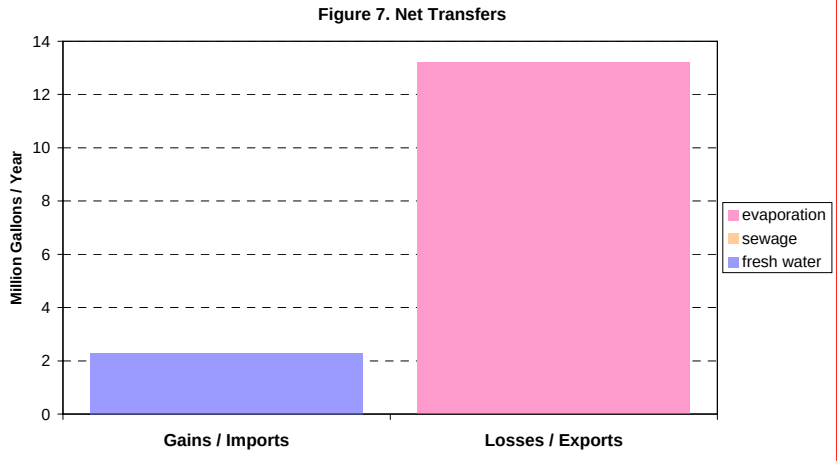
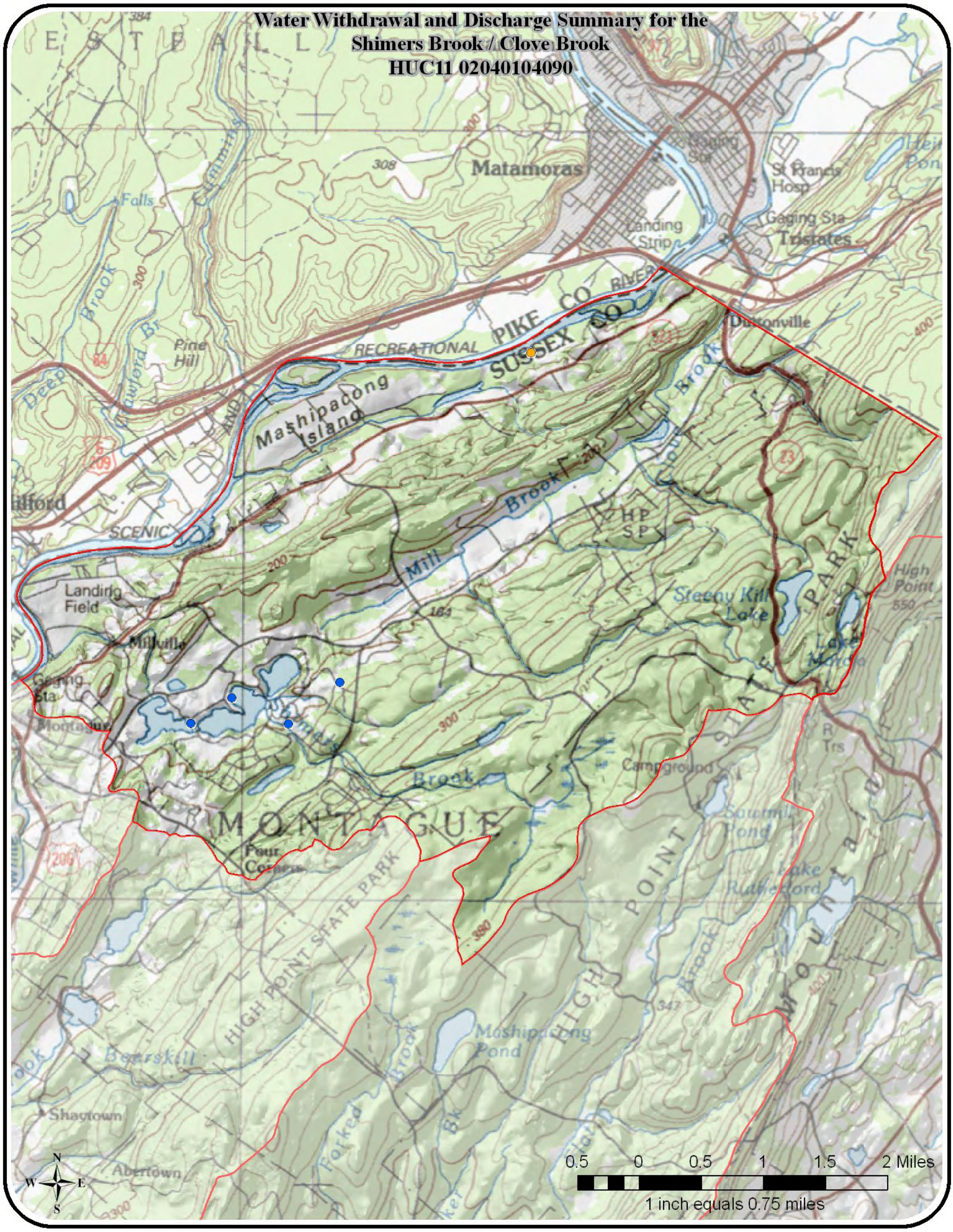
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Shimers Brook / Clove Brook HUC11 02040104090



Key for Discharge Data

1999 Treated Effluent Discharge	
0 - 50	MGY
50 - 100	MGY
100 - 500	MGY
> 500	MGY
Other Permitted Discharge	

Key for Withdrawal Data

Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal	
No 1999 Use	■●▲
1 - 50	MGY ■●▲
51 - 100	MGY ■●▲
101 - 500	MGY ■●▲
> 500	MGY ■●▲

Use Group	
Agricultural	
Commercial	
Industrial	
Irrigation	
Mining	
Not Classified	
Potable Supply	
Power Generation	

MGY = millions of gallons per year

Area of Detail

Water Withdrawals, Transfers and Discharges for WALPACK BEND / MONTAGUE RIVERFRONT --- 02040104110

WMA:	**Upper Delaware**	**01**
HUC11:	**Walpack Bend / Montague Riverfront**	**02040104110**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	0	0	0	0	0	0	0	0	0	0	0
sum	0	0	0	0	0	0	0	0	0	0	0
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	20	23	23	24	24	24	24	24	24	24	23
sum	20	23	23	24	24	24	24	24	24	24	23
total withdrawals:	20	23	23	24	24	24	24	24	24	24	23

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	0	0	0	0	0	0	0	0	0	0	0
exports[11]	0	2	3	3	3	3	2	2	2	2	2
net	0	(2)	(3)	(3)	(3)	(3)	(2)	(2)	(2)	(2)	(2)

Fig 1. Average Source of Fresh Water

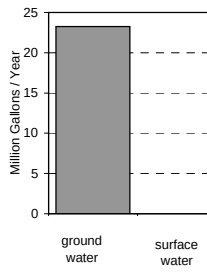


Fig 2. Average Destination of Fresh Water

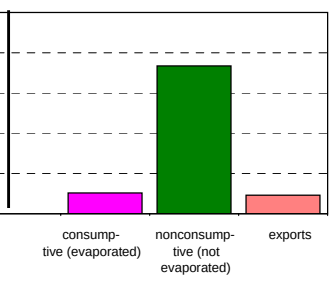


Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
domestic wells											
nonconsumptive	18	18	18	18	18	18	19	19	19	19	18
consumptive	2	3	3	3	3	3	3	3	3	3	3
industrial & commercial & mining											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrigation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	18	18	18	18	18	18	19	19	19	19	18
consumptive	2	3	3	3	3	3	3	3	3	3	3
PERCENTAGES:											
nonconsumptive	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.6%	87.7%
consumptive	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.4%	12.3%

Figure 3. Consumptive & Nonconsumptive Use

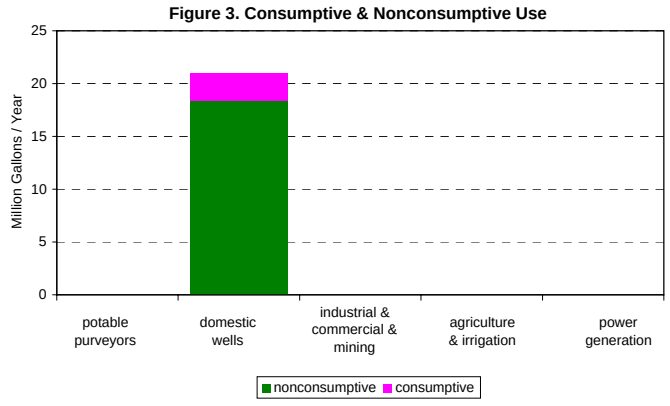


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	0	0	0	0	0	0	0	0	0	0
domestic wells	4	0	4	0	5	2	4	0	18	3
industrial & commercial & 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	0	0	0	0	0	0	0	0	0	0
SUM:	4	0	4	0	5	2	4	0	18	3

Figure 4. Average Seasonal Consumptive Water Loss, by Use

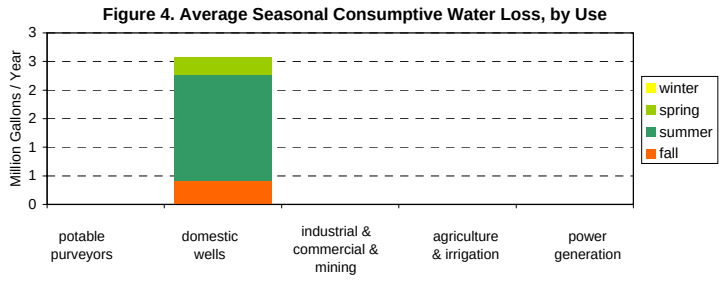


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	0	0	0	0	0	0	0	0	0	0	0
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0

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	0	0	0	0	0	0	0	0	0	0	0
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	0	0	0	0	0	0	0	0	0	0	0

Figure 5. Average Sewage Generation & Transfers

Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	0
ground water	16
total	16

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	0
commercial	0
industrial	0
irrigation	0
mining	0
potable supply	16
power generation	0
total	16

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	18.0	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	18.0	sq. mi.
(this HUC11 onshore area:	16.9	sq. mi.)

--- Population of this HUC11:

Year	Population	Change	
1940	221	-	
1950	251	13.8%	
1960	320	27.3%	
1970	426	32.9%	
1980	484	13.7%	
1990	575	18.8%	
2000	635	10.5%	
2010	706	11.2%	est.[12]
2020	798	13.0%	est.[12]
2030	945	18.4%	est.[12]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040104240	Van Campens Brook / Dunnfield Creek
(if any)		
upstream:	--	--
(if any)	--	--
	--	--
	--	--
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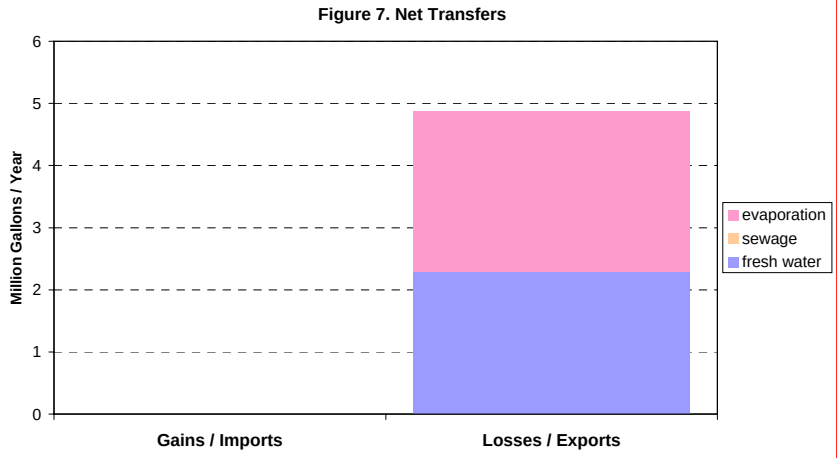
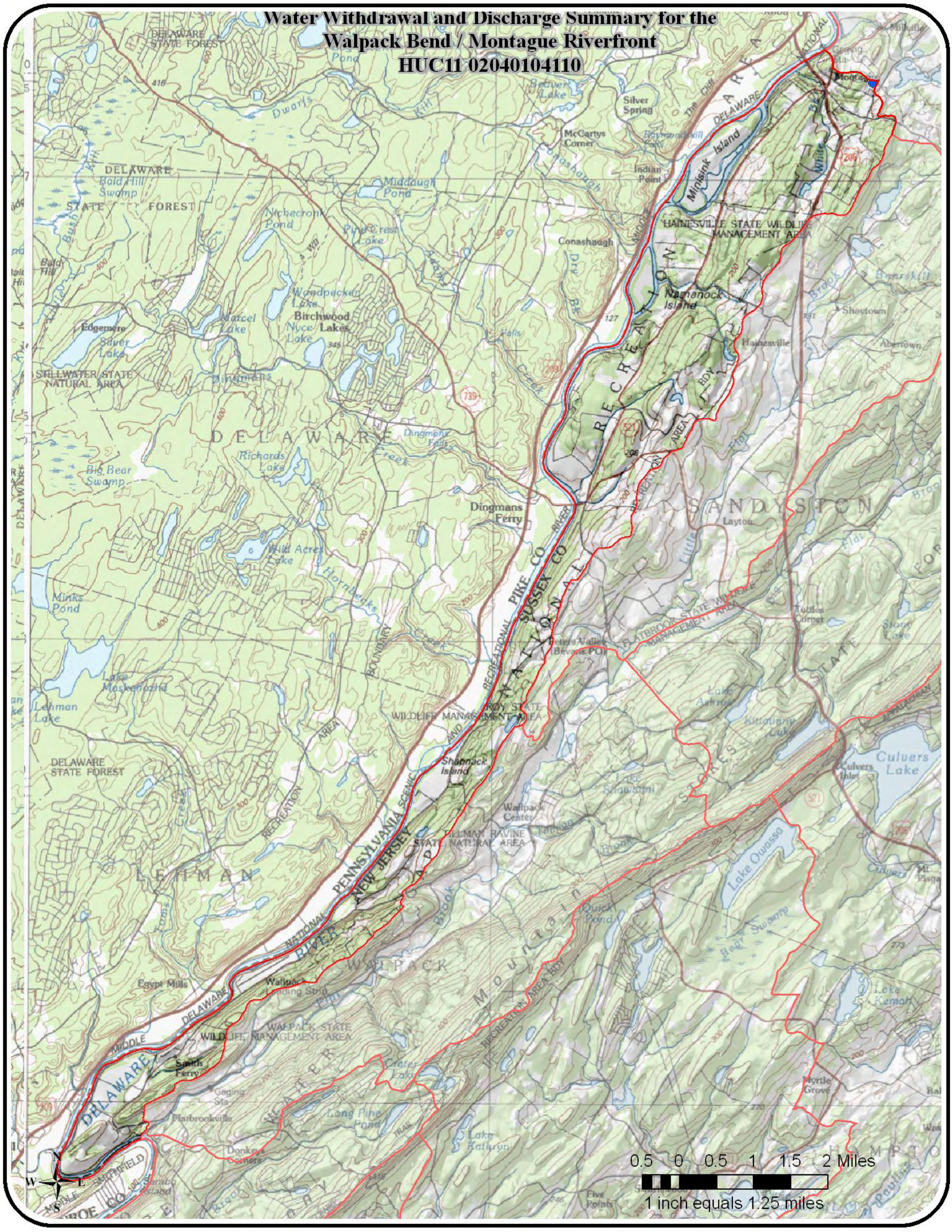
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Walpack Bend / Montague Riverfront HUC11 02040104110



Key for Discharge Data

1999 Treated Effluent Discharge	
0 - 50	MGY
50 - 100	MGY
100 - 500	MGY
> 500	MGY
Other Permitted Discharge	

Key for Withdrawal Data

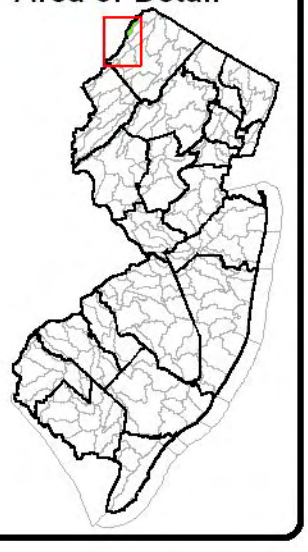
Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal	
No 1999 Use	■●▲
1 - 50 MGY	■●▲
51 - 100 MGY	■●▲
101 - 500 MGY	■●▲
> 500 MGY	■●▲

Use Group	
Agricultural	
Commercial	
Industrial	
Irrigation	
Mining	
Not Classified	
Potable Supply	
Power Generation	

MGY = millions of gallons per year

Area of Detail



Water Withdrawals, Transfers and Discharges for LITTLE FLAT BROOK --- 02040104130

WMA:	**Upper Delaware**	**01**
HUC11:	**Little Flat Brook**	**02040104130**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	0	0	0	0	0	0	0	0	0	0	0
sum	0	0	0	0	0	0	0	0	0	0	0
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	28	28	28	28	28	29	29	29	29	30	29
sum	28	28	28	28	28	29	29	29	29	30	29
total withdrawals:	28	28	28	28	28	29	29	29	29	30	29

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	0	0	0	0	0	0	0	0	0	0	0
exports[11]	0	0	0	0	0	0	0	0	0	0	0
net	0	0	0	0	0	0	0	0	0	0	0

Fig 1. Average Source of Fresh Water

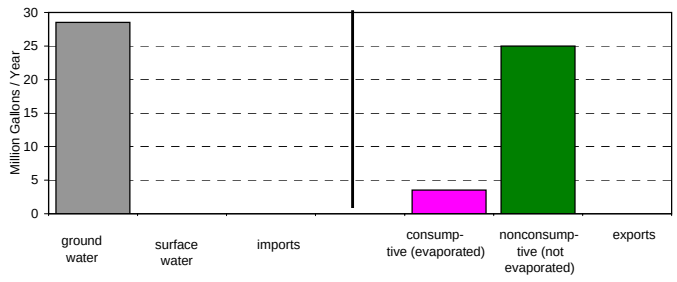


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
domestic wells											
nonconsumptive	24	24	24	25	25	25	25	26	26	26	25
consumptive	3	3	3	3	3	4	4	4	4	4	4
industrial & commercial & mining											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrigation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	24	24	24	25	25	25	25	26	26	26	25
consumptive	3	3	3	3	3	4	4	4	4	4	4
PERCENTAGES:											
nonconsumptive	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.6%	87.7%
consumptive	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.4%	12.3%

Figure 3. Consumptive & Nonconsumptive Use

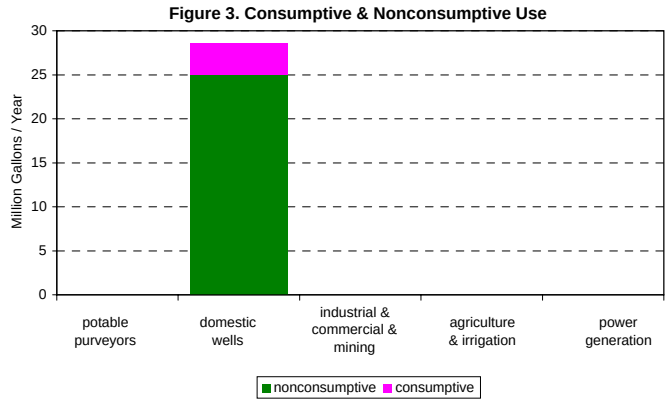


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	0	0	0	0	0	0	0	0	0	0
domestic wells	6	0	6	0	7	3	6	1	25	4
industrial & commercial & 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	0	0	0	0	0	0	0	0	0	0
SUM:	6	0	6	0	7	3	6	1	25	4

Figure 4. Average Seasonal Consumptive Water Loss, by Use

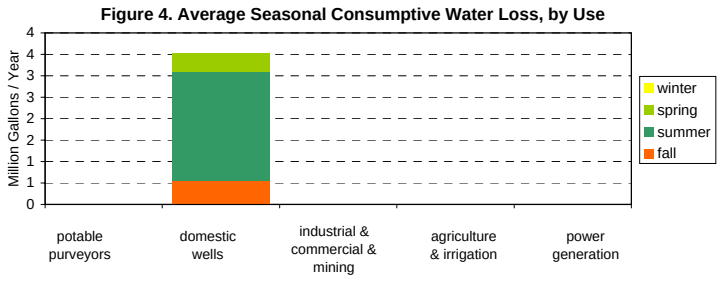


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	0	0	0	0	0	0	0	0	0	0	0
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0

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	0	0	0	0	0	0	0	0	0	0	0
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	0	0	0	0	0	0	0	0	0	0	0

Figure 5. Average Sewage Generation & Transfers

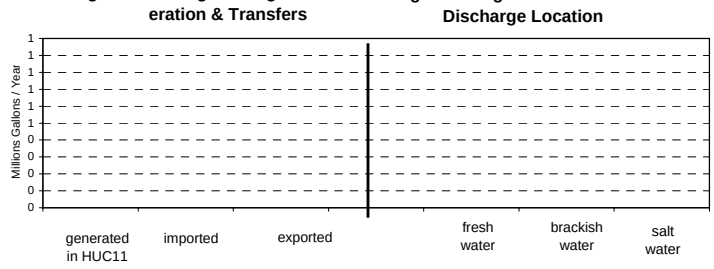


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	0
ground water	0
total	0

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	0
commercial	0
industrial	0
irrigation	0
mining	0
potable supply	0
power generation	0
total	0

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	16.8	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	16.8	sq. mi.
(this HUC11 onshore area:	16.8	sq. mi.)

--- Population of this HUC11:

Year	Population	Change	
1940	249	-	
1950	296	18.8%	
1960	379	28.0%	
1970	486	28.3%	
1980	635	30.7%	
1990	786	23.7%	
2000	874	11.3%	
2010	974	11.4%	est.[12]
2020	1,101	13.0%	est.[12]
2030	1,307	18.7%	est.[12]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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:

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040104150	Flat Brook
(if any)		
upstream:	--	--
(if any)	--	--
	--	--
	--	--
	--	--
	--	--
	--	--
	--	--
	--	--
	--	--
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	--	--
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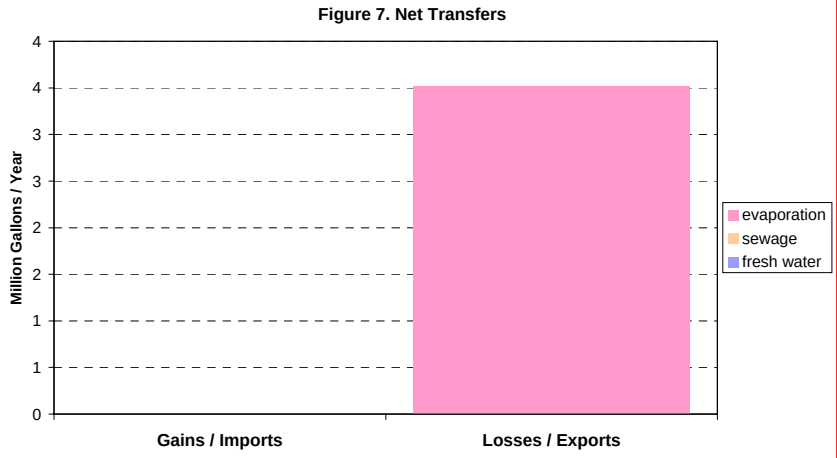
	--	--
	--	--

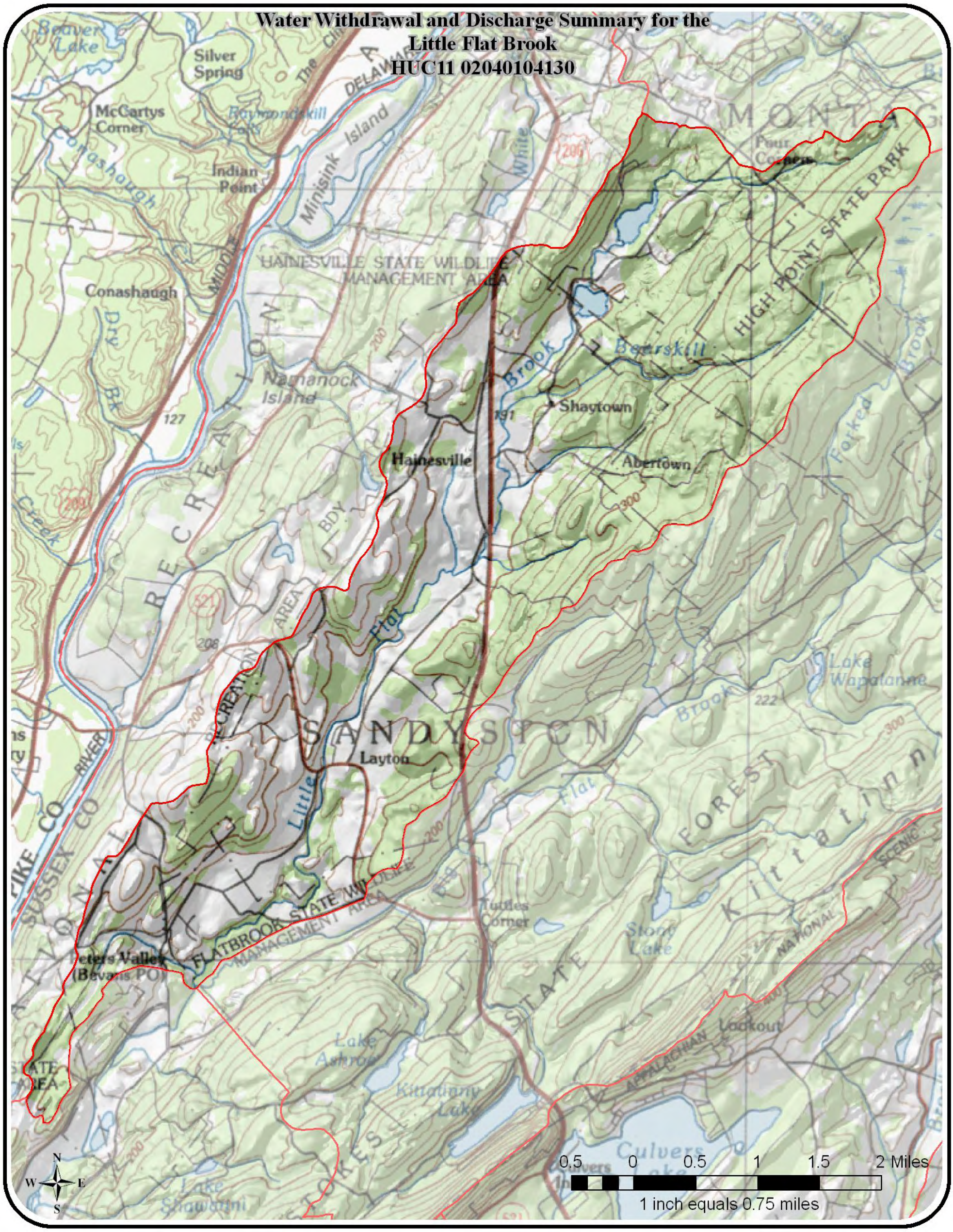
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Little Flat Brook HUC11 02040104130



Key for Discharge Data

1999 Treated Effluent Discharge	
0 - 50	MGY
50 - 100	MGY
100 - 500	MGY
> 500	MGY
Other Permitted Discharge	

Key for Withdrawal Data

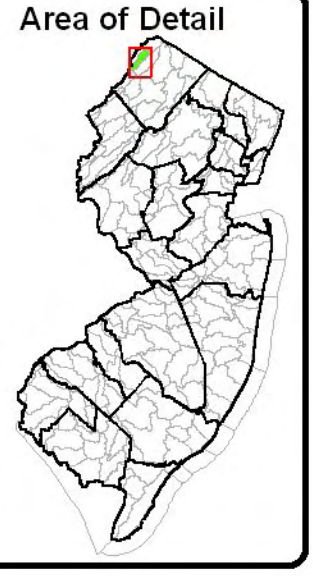
Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal		
No 1999 Use		
1 - 50	MGY	
51 - 100	MGY	
101 - 500	MGY	
> 500	MGY	

Use Group
Agricultural
Commercial
Industrial
Irrigation
Mining
Not Classified
Potable Supply
Power Generation

MGY = millions of gallons per year

Area of Detail



Water Withdrawals, Transfers and Discharges for BIG FLAT BROOK --- 02040104140

WMA:	**Upper Delaware**	**01**
HUC11:	**Big Flat Brook**	**02040104140**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	0	0	0	0	0	0	0	0	0	0	0
sum	0	0	0	0	0	0	0	0	0	0	0
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	55	56	56	56	57	58	58	59	59	60	57
sum	55	56	56	56	57	58	58	59	59	60	57
total withdrawals:	55	56	56	56	57	58	58	59	59	60	57

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	0	0	0	0	0	0	0	0	0	0	0
exports[11]	0	0	0	0	0	0	0	0	0	0	0
net	0	0	0	0	0	0	0	0	0	0	0

Fig 1. Average Source of Fresh Water

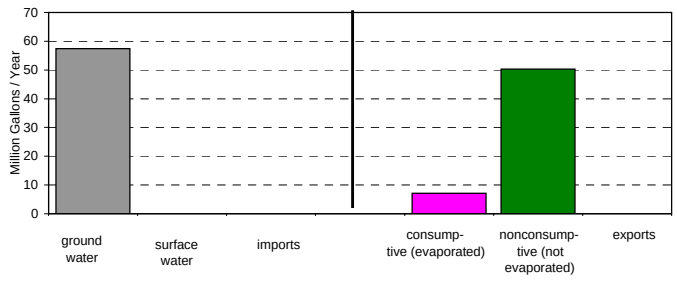


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
domestic wells											
nonconsumptive	49	49	49	49	50	51	51	51	52	53	50
consumptive	7	7	7	7	7	7	7	7	7	7	7
industrial & commercial & mining											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrigation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	49	49	49	49	50	51	51	51	52	53	50
consumptive	7	7	7	7	7	7	7	7	7	7	7
PERCENTAGES:											
nonconsumptive	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.6%	87.7%
consumptive	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.4%	12.3%

Figure 3. Consumptive & Nonconsumptive Use

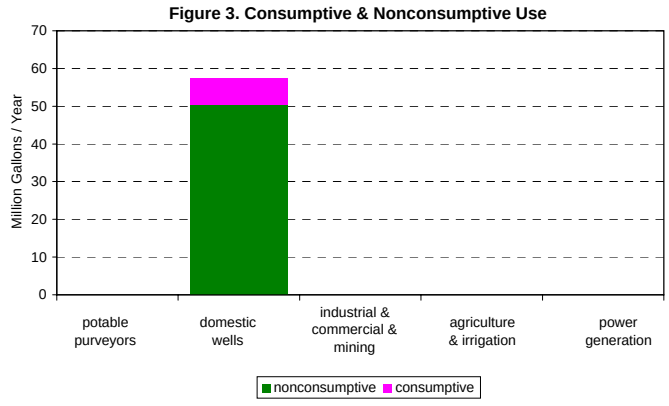


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	0	0	0	0	0	0	0	0	0	0
domestic wells	12	0	12	1	15	5	12	1	50	7
industrial & commercial & 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	0	0	0	0	0	0	0	0	0	0
SUM:	12	0	12	1	15	5	12	1	50	7

Figure 4. Average Seasonal Consumptive Water Loss, by Use

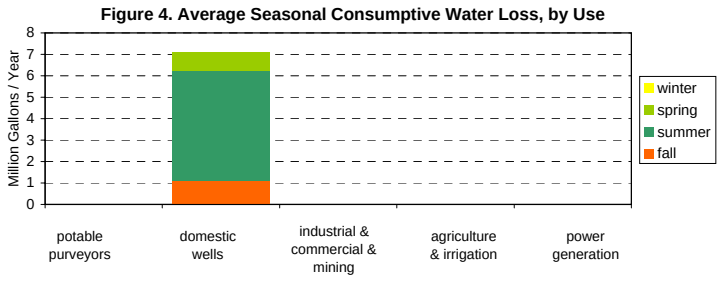


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	1	3	1	0	0	0	0	0	0	0	1
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0

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	1	3	1	0	0	0	0	0	0	0	1
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	1	3	1	0	0	0	0	0	0	0	1

Figure 5. Average Sewage Generation & Transfers

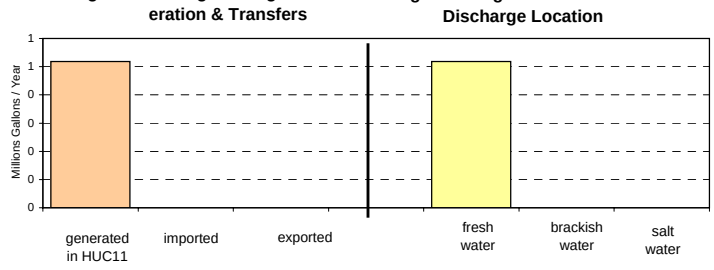


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	0
ground water	0
total	0

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	0
commercial	0
industrial	0
irrigation	0
mining	0
potable supply	0
power generation	0
total	0

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	32.6	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	32.6	sq. mi.
(this HUC11 onshore area:	32.6	sq. mi.)

--- Population of this HUC11:

Year	Population	Change	
1940	490	-	
1950	566	15.6%	
1960	741	30.8%	
1970	949	28.2%	
1980	1,334	40.5%	
1990	1,679	25.9%	
2000	1,898	13.0%	
2010	2,138	12.6%	est.[12]
2020	2,452	14.7%	est.[12]
2030	2,887	17.8%	est.[12]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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:

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040104150	Flat Brook
(if any)		
upstream:	--	--
(if any)	--	--
	--	--
	--	--
	--	--
	--	--
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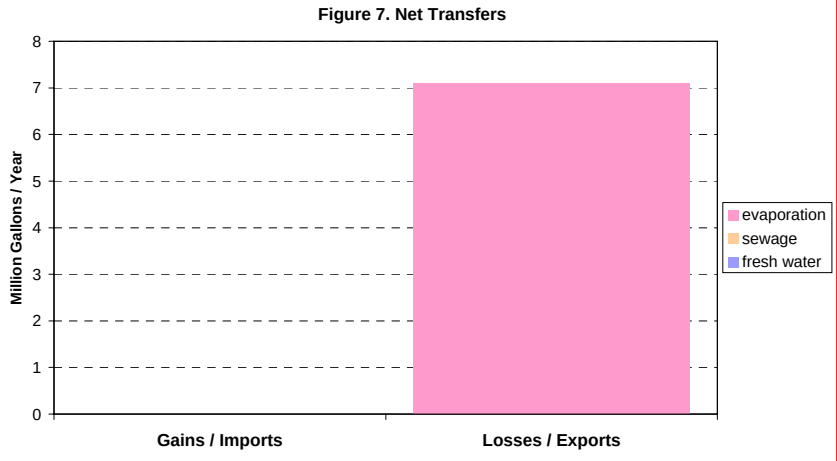
	--	--

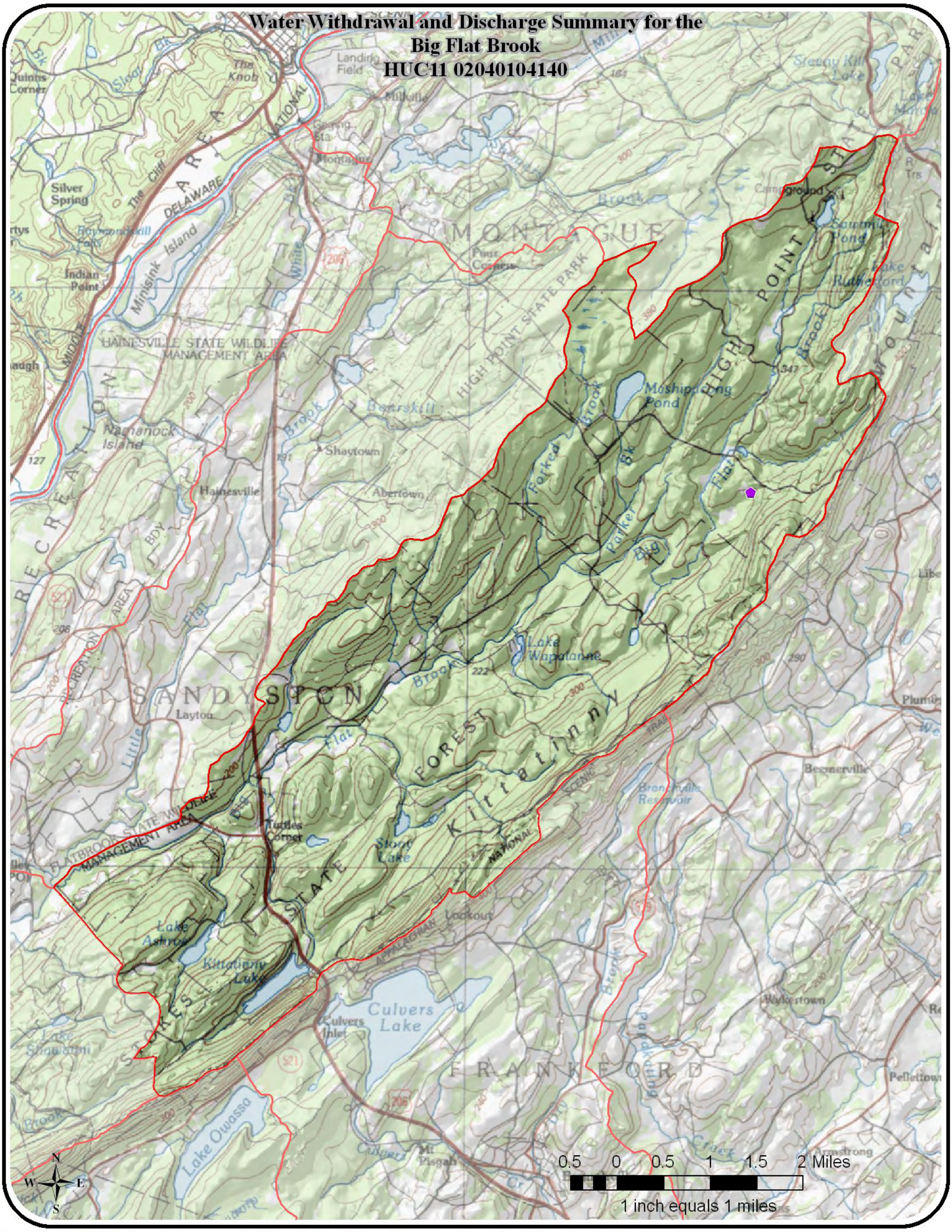
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Big Flat Brook HUC11 02040104140



Key for Discharge Data

1999 Treated Effluent Discharge	
0 - 50	MGY
50 - 100	MGY
100 - 500	MGY
> 500	MGY
Other Permitted Discharge	

Key for Withdrawal Data

Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal	
No 1999 Use	
1 - 50	MGY
51 - 100	MGY
101 - 500	MGY
> 500	MGY

Use Group
Agricultural
Commercial
Industrial
Irrigation
Mining
Not Classified
Potable Supply
Power Generation

MGY = millions of gallons per year

Area of Detail

Water Withdrawals, Transfers and Discharges for FLAT BROOK --- 02040104150

WMA:	**Upper Delaware**	**01**
HUC11:	**Flat Brook**	**02040104150**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	0	0	0	0	0	0	0	0	0	0	0
sum	0	0	0	0	0	0	0	0	0	0	0
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	11	11	11	11	11	11	11	11	11	11	11
sum	11	11	11	11	11	11	11	11	11	11	11
total withdrawals:	11	11	11	11	11	11	11	11	11	11	11

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	0	0	0	0	0	0	0	0	0	0	0
exports[11]	0	0	0	0	0	0	0	0	0	0	0
net	0	0	0	0	0	0	0	0	0	0	0

Fig 1. Average Source of Fresh Water

Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
domestic wells											
nonconsumptive	9	9	9	9	9	10	10	10	10	10	9
consumptive	1	1	1	1	1	1	1	1	1	1	1
industrial & commercial & mining											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrigation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	9	9	9	9	9	10	10	10	10	10	9
consumptive	1	1	1	1	1	1	1	1	1	1	1
PERCENTAGES:											
nonconsumptive	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%
consumptive	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%

Figure 3. Consumptive & Nonconsumptive Use

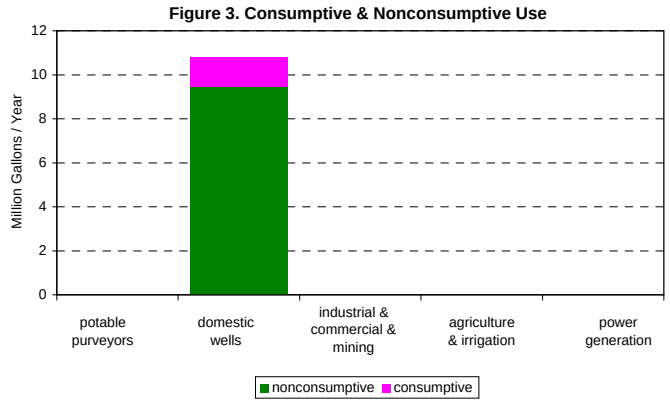


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	0	0	0	0	0	0	0	0	0	0
domestic wells	2	0	2	0	3	1	2	0	9	1
industrial & commercial & 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	0	0	0	0	0	0	0	0	0	0
SUM:	2	0	2	0	3	1	2	0	9	1

Figure 4. Average Seasonal Consumptive Water Loss, by Use

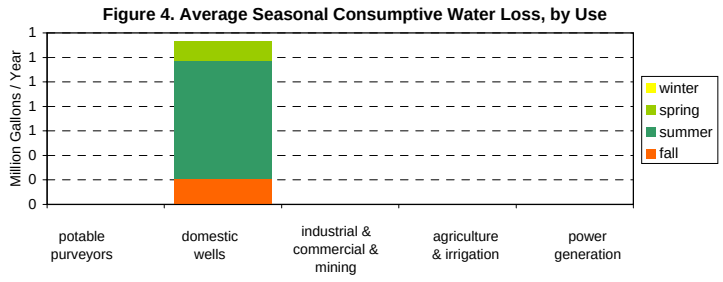


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	0	0	0	0	0	0	0	0	0	0	0
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0

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	0	0	0	0	0	0	0	0	0	0	0
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	0	0	0	0	0	0	0	0	0	0	0

Figure 5. Average Sewage Generation & Transfers

Fig 6. Average Treated-Effluent Discharge Location

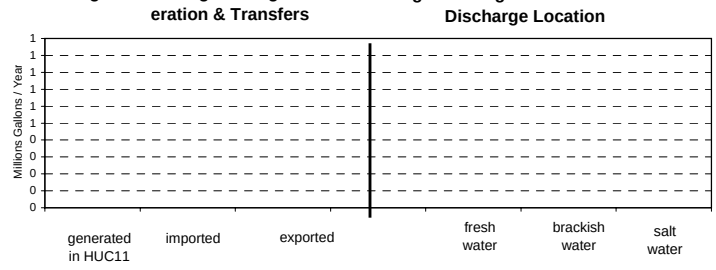


Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	0
ground water	0
total	0

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	0
commercial	0
industrial	0
irrigation	0
mining	0
potable supply	0
power generation	0
total	0

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	16.9	sq. mi.
upstream HUC11s	49.4	sq. mi.
total watershed	66.2	sq. mi.
(this HUC11 onshore area:	16.9	sq. mi.)

--- Population of this HUC11:

Year	Population	Change	
1940	186	-	
1950	204	9.4%	
1960	253	24.5%	
1970	367	44.8%	
1980	280	-23.5%	
1990	264	-5.9%	
2000	259	-1.9%	
2010	267	3.0%	est.[12]
2020	276	3.6%	est.[12]
2030	322	16.6%	est.[12]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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:

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040104240	Van Campens Brook / Dunnfield Creek
(if any)		
upstream:	02040104130	Little Flat Brook
(if any)	02040104140	Big Flat Brook
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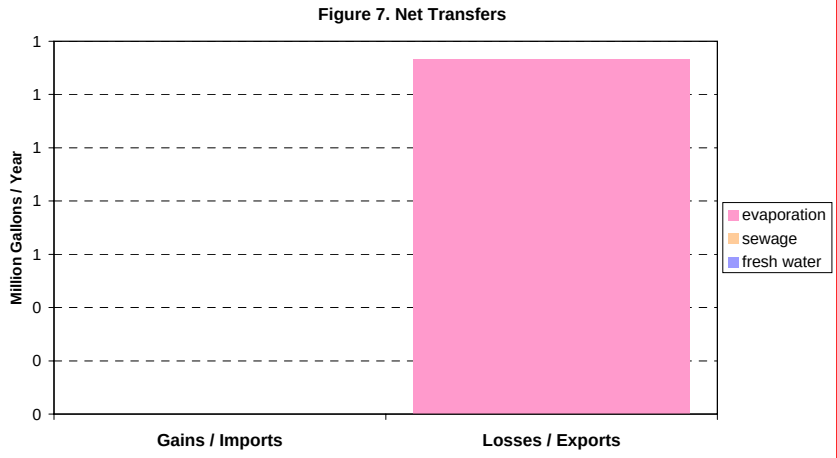
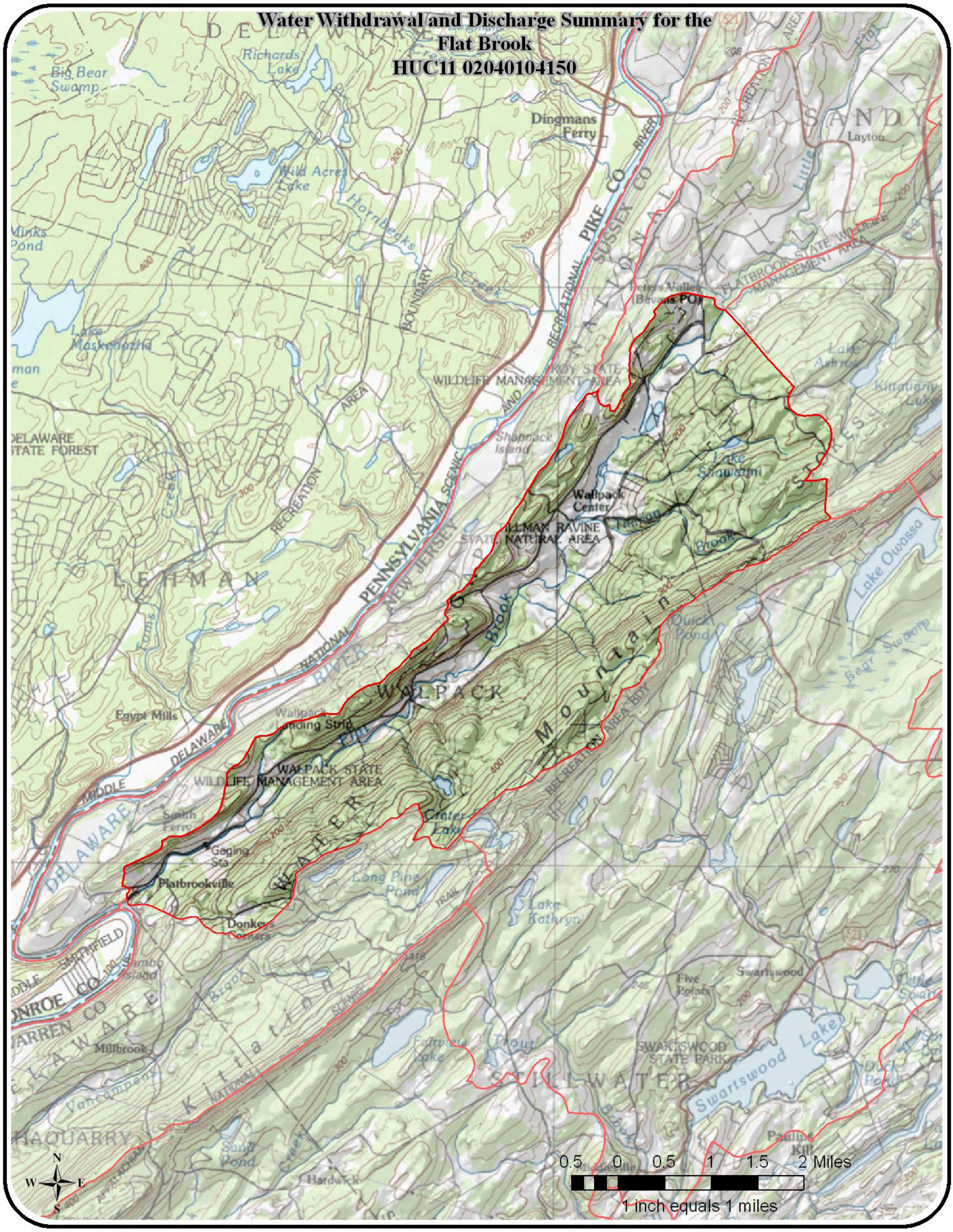
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Flat Brook HUC11 02040104150



Key for Discharge Data

1999 Treated Effluent Discharge	
0 - 50	MGY
50 - 100	MGY
100 - 500	MGY
> 500	MGY
Other Permitted Discharge	

Key for Withdrawal Data

Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal	
No 1999 Use	
1 - 50	MGY
51 - 100	MGY
101 - 500	MGY
> 500	MGY

Use Group
Agricultural
Commercial
Industrial
Irrigation
Mining
Not Classified
Potable Supply
Power Generation

MGY = millions of gallons per year

Area of Detail

Water Withdrawals, Transfers and Discharges for VAN CAMPENS BROOK / DUNNFIELD CREEK --- 02040104240

WMA:	**Upper Delaware**	**01**
HUC11:	**Van Campens Brook / Dunnfield Creek**	**02040104240**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	0	0	0	0	0	0	0	0	0	0	0
sum	0	0	0	0	0	0	0	0	0	0	0
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	20	20	20	21	21	22	22	22	23	24	21
sum	20	20	20	21	21	22	22	22	23	24	21
total withdrawals:	20	20	20	21	21	22	22	22	23	24	21

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	0	0	0	0	0	0	0	0	0	0	0
exports[11]	0	0	0	0	0	0	0	0	0	0	0
net	0	0	0	0	0	0	0	0	0	0	0

Fig 1. Average Source of Fresh Water

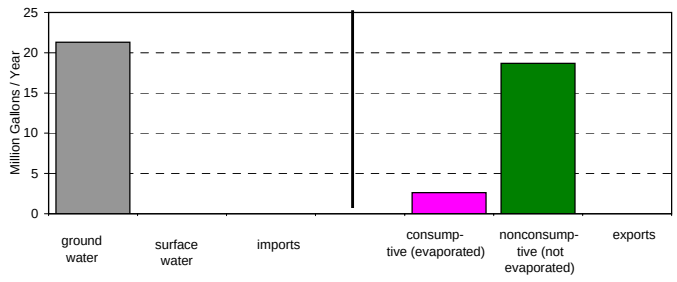


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
domestic wells											
nonconsumptive	17	17	18	18	19	19	19	19	20	21	19
consumptive	2	2	2	3	3	3	3	3	3	3	3
industrial & commercial & mining											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrigation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	17	17	18	18	19	19	19	19	20	21	19
consumptive	2	2	2	3	3	3	3	3	3	3	3
PERCENTAGES:											
nonconsumptive	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.6%	87.6%	87.7%
consumptive	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.4%	12.4%	12.3%

Figure 3. Consumptive & Nonconsumptive Use

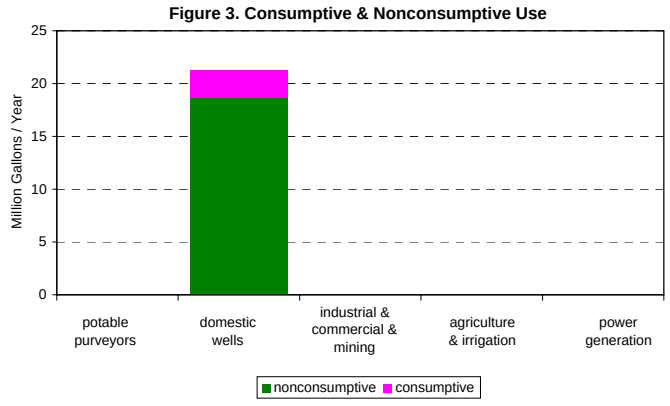


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	0	0	0	0	0	0	0	0	0	0
domestic wells	4	0	4	0	5	2	5	0	19	3
industrial & commercial & 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	0	0	0	0	0	0	0	0	0	0
SUM:	4	0	4	0	5	2	5	0	19	3

Figure 4. Average Seasonal Consumptive Water Loss, by Use

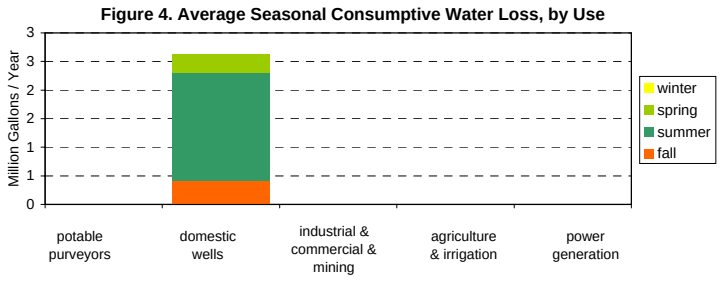


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	0	0	0	0	0	0	0	0	0	0	0
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0

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	0	0	0	0	0	0	0	0	0	0	0
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	0	0	0	0	0	0	0	0	0	0	0

Figure 5. Average Sewage Generation & Transfers

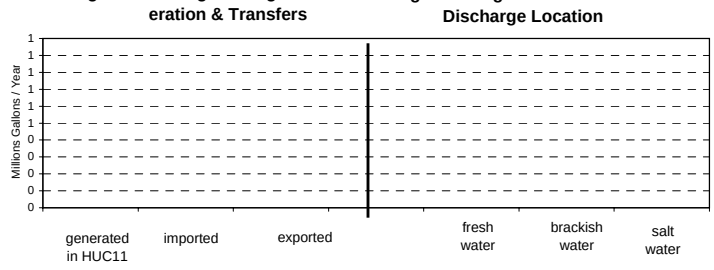


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	0
ground water	0
total	0

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	0
commercial	0
industrial	0
irrigation	0
mining	0
potable supply	0
power generation	0
total	0

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	23.3	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	23.3	sq. mi.
(this 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%	
2010	811	14.1%	est.[12]
2020	861	6.3%	est.[12]
2030	909	5.6%	est.[12]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040105060	Stony Brook / Delawanna Creek
(if any)		
upstream:	--	--
(if any)	--	--
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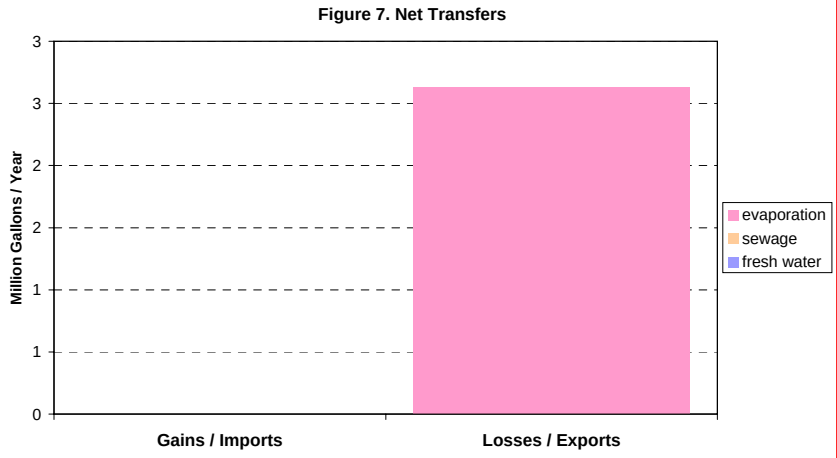
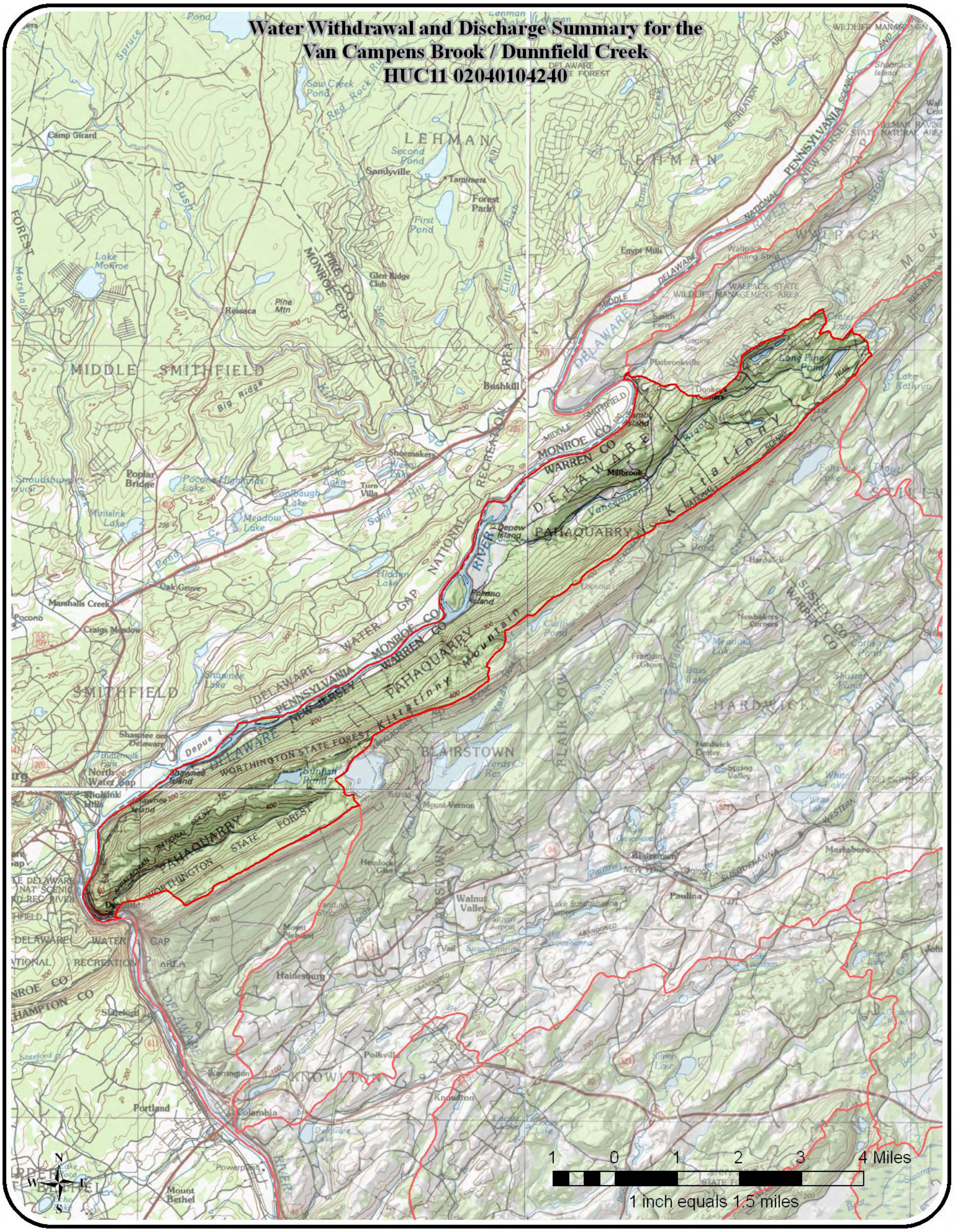
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Van Campens Brook / Dunnfield Creek HUC11 02040104240



Key for Discharge Data

1999 Treated Effluent Discharge

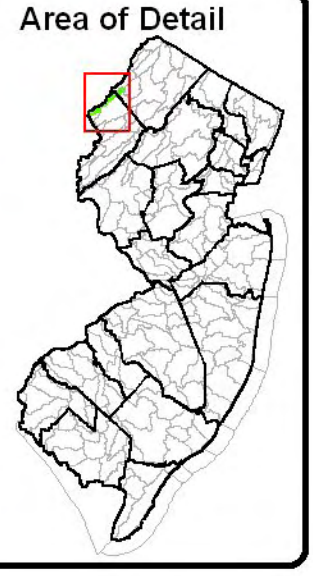
0 - 50	MGY	♦
50 - 100	MGY	♦
100 - 500	MGY	♦
> 500	MGY	♦
Other Permitted Discharge		⬟

Key for Withdrawal Data

Source		1999 Withdrawal		Use Group	
GW Confined	□	No 1999 Use	■●▲	Agricultural	
GW Unconfined	○	1 - 50 MGY	■●▲	Commercial	
SW	△	51 - 100 MGY	■●▲	Industrial	
		101 - 500 MGY	■●▲	Irrigation	
		> 500 MGY	■●▲	Mining	
				Not Classified	
				Potable Supply	
				Power Generation	

MGY = millions of gallons per year

Area of Detail



Water Withdrawals, Transfers and Discharges for TROUT BROOK / SWARTSWOOD LAKE --- 02040105030

WMA:	**Upper Delaware**	**01**
HUC11:	**Trout Brook / Swartswood Lake**	**02040105030**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	0	0	0	0	0	0	0	0	0	0	0
sum	0	0	0	0	0	0	0	0	0	0	0
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	114	114	115	116	117	118	119	119	120	122	118
sum	114	114	115	116	117	118	119	119	120	122	118
total withdrawals:	114	114	115	116	117	118	119	119	120	122	118

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	0	0	0	0	0	0	0	0	0	0	0
exports[11]	0	0	0	0	0	0	0	0	0	1	0
net	0	0	0	0	0	0	0	0	0	(1)	(0)

Fig 1. Average Source of Fresh Water

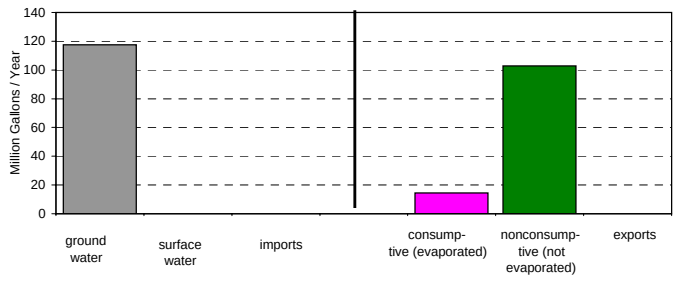


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
domestic wells											
nonconsumptive	100	100	101	101	103	103	104	105	106	106	103
consumptive	14	14	14	14	14	15	15	15	15	15	14
industrial & commercial & mining											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrigation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	100	100	101	101	103	103	104	105	106	106	103
consumptive	14	14	14	14	14	15	15	15	15	15	14
PERCENTAGES:											
nonconsumptive	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%	87.7%
consumptive	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%

Figure 3. Consumptive & Nonconsumptive Use

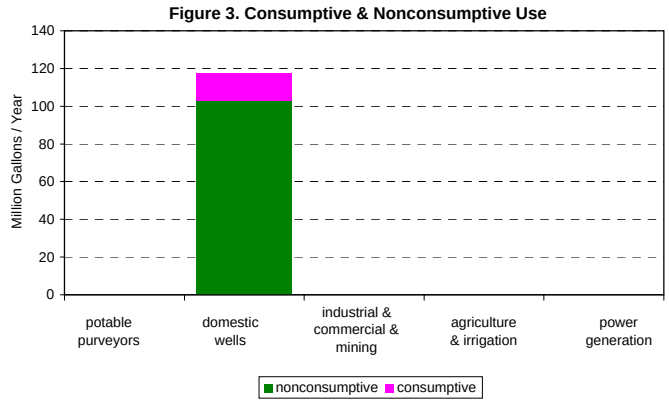


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	0	0	0	0	0	0	0	0	0	0
domestic wells	24	0	24	2	30	10	25	2	103	14
industrial & commercial & 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	0	0	0	0	0	0	0	0	0	0
SUM:	24	0	24	2	30	10	25	2	103	14

Figure 4. Average Seasonal Consumptive Water Loss, by Use

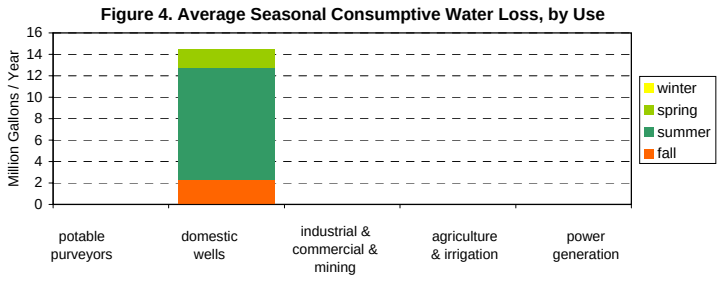


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	0	0	0	0	0	0	0	0	0	0	0
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0

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	0	0	0	0	0	0	0	0	0	0	0
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	0	0	0	0	0	0	0	0	0	0	0

Figure 5. Average Sewage Generation & Transfers

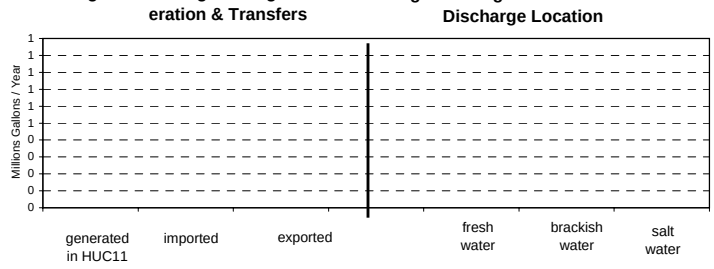


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	0
ground water	6
total	6

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	0
commercial	0
industrial	0
irrigation	0
mining	0
potable supply	6
power generation	0
total	6

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	27.8	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	27.8	sq. mi.
(this HUC11 onshore area:	27.8	sq. mi.)

--- Population of this HUC11:

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%	
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:

Type	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040105040	Paulins Kill (above Stillwater Village)
(if any)		
upstream:	--	--
(if any)	--	--
	--	--
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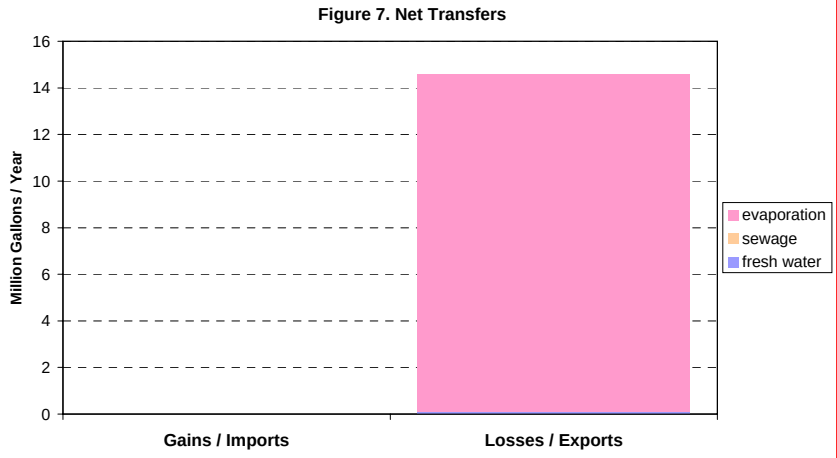
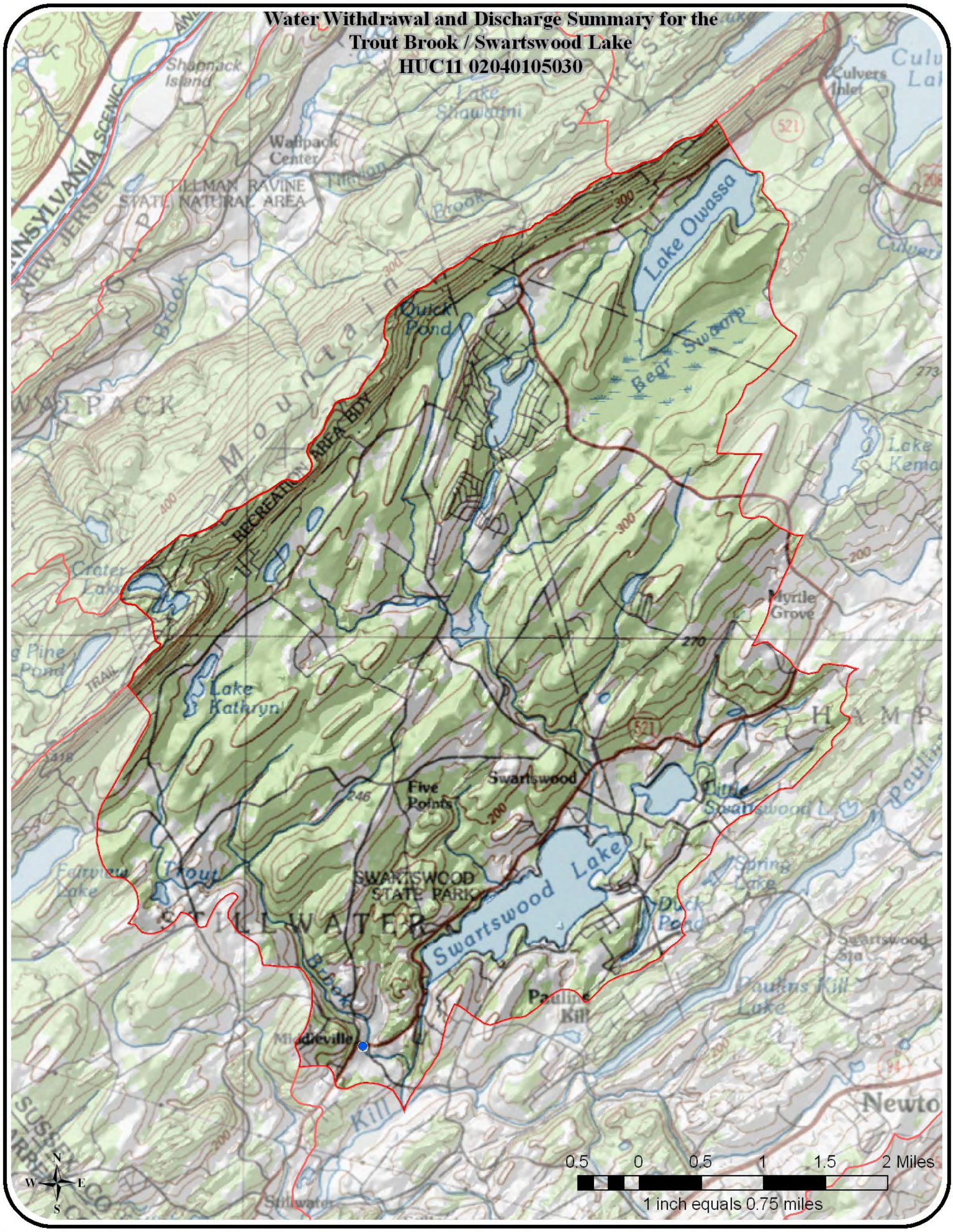
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Trout Brook / Swartswood Lake HUC11 02040105030



Key for Discharge Data

1999 Treated Effluent Discharge		
0 - 50	MGY	♦
50 - 100	MGY	♦
100 - 500	MGY	♦
> 500	MGY	♦
Other Permitted Discharge		⬟

Key for Withdrawal Data

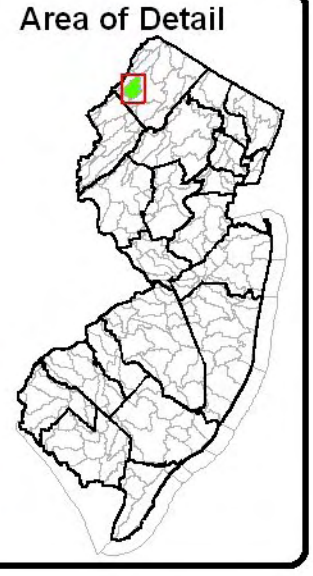
Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal		
No 1999 Use		■●▲
1 - 50	MGY	■●▲
51 - 100	MGY	■●▲
101 - 500	MGY	■●▲
> 500	MGY	■●▲

MGY = millions of gallons per year

Use Group	
Agricultural	
Commercial	
Industrial	
Irrigation	
Mining	
Not Classified	
Potable Supply	
Power Generation	

Area of Detail



Water Withdrawals, Transfers and Discharges for UPPER PAULINS KILL --- 02040105040

WMA:	**Upper Delaware**	**01**
HUC11:	**Upper Paulins Kill**	**02040105040**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	35	35	14	38	18	25	14	17	25	35	26
sum	35	35	14	38	18	25	14	17	25	35	26
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	2,819	2,413	2,425	2,622	2,347	2,637	3,225	2,941	2,967	2,771	2,717
sum	2,819	2,413	2,425	2,622	2,347	2,637	3,225	2,941	2,967	2,771	2,717
total withdrawals:	2,854	2,448	2,438	2,660	2,366	2,662	3,239	2,958	2,992	2,806	2,742

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	375	379	375	424	355	340	361	362	339	324	363
exports[11]	0	0	0	0	0	2	2	7	18	23	5
net	375	379	375	424	355	338	358	355	321	301	358

Fig 1. Average Source of Fresh Water

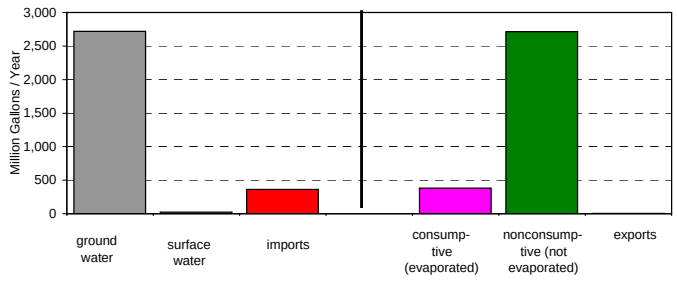


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	360	371	369	447	415	389	430	431	427	411	405
consumptive	50	45	43	60	48	43	48	47	46	43	47
domestic wells											
nonconsumptive	277	278	280	284	288	292	296	300	306	311	291
consumptive	39	39	39	40	41	41	42	42	43	44	41
industrial & commercial & mining											
nonconsumptive	2,192	1,817	1,823	1,956	1,678	1,942	2,433	2,175	2,165	1,981	2,016
consumptive	299	248	249	268	229	265	332	296	294	270	275
agricultural & non-agricultural irrigation											
nonconsumptive	1	3	1	3	2	3	1	2	3	4	2
consumptive	10	26	7	24	17	24	13	15	28	40	20
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	2,830	2,469	2,472	2,690	2,383	2,626	3,160	2,908	2,900	2,707	2,714
consumptive	398	358	337	392	335	373	434	401	412	397	384
PERCENTAGES:											
nonconsumptive	87.7%	87.4%	88.0%	87.3%	87.7%	87.6%	87.9%	87.9%	87.6%	87.2%	87.6%
consumptive	12.3%	12.6%	12.0%	12.7%	12.3%	12.4%	12.1%	12.1%	12.4%	12.8%	12.4%

Figure 3. Consumptive & Nonconsumptive Use

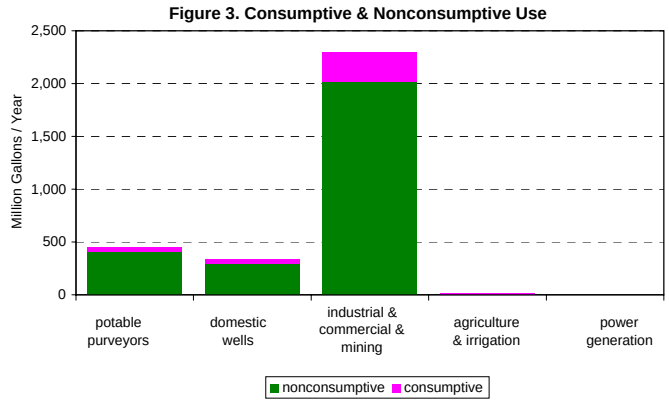


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	110	0	103	7	92	32	102	9	407	47
domestic wells	67	0	68	5	85	29	71	7	291	41
industrial & commercial & mining	516	70	550	75	501	68	449	61	2,016	275
agricultural & non-agricultural irrig.	0	0	0	2	2	15	0	3	2	20
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	693	70	722	89	679	145	623	79	2,717	384

Figure 4. Average Seasonal Consumptive Water Loss, by Use

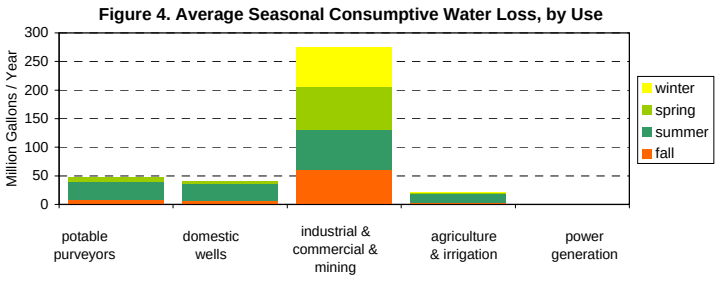


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	292	334	371	395	389	336	431	317	359	343	357
imported to HUC11	17	20	22	24	23	20	26	19	21	20	21
exported from HUC11	2	1	1	2	2	2	2	1	1	1	2

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	307	353	392	417	410	355	455	335	378	362	376
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	307	353	392	417	410	355	455	335	378	362	376

Figure 5. Average Sewage Generation & Transfers

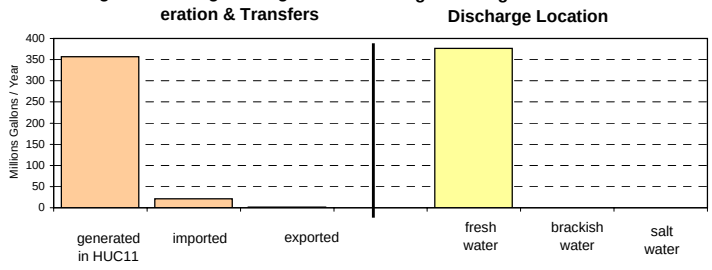


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	877
ground water	3,034
total	3,911

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	0
commercial	37
industrial	70
irrigation	61
mining	3,251
potable supply	492
power generation	0
total	3,911

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	79.4	sq. mi.
upstream HUC11s	27.8	sq. mi.
total watershed	107.1	sq. mi.
(this HUC11 onshore area:	79.4	sq. mi.)

--- Population of this HUC11:

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]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	12.3%

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)	--	--
	--	--
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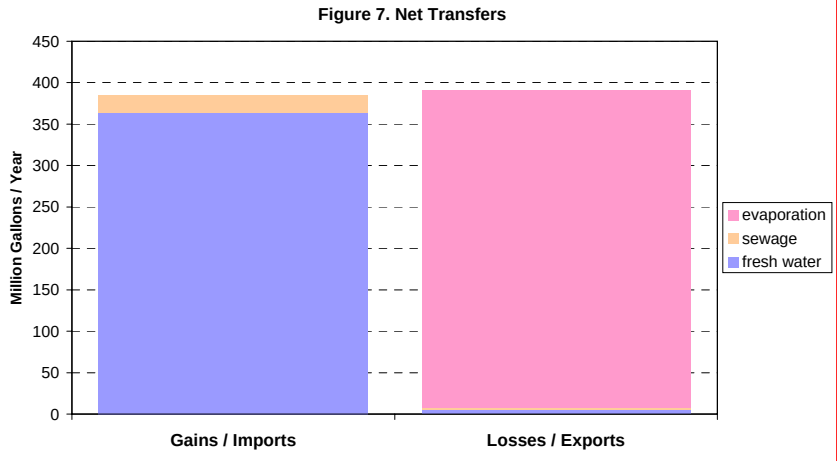
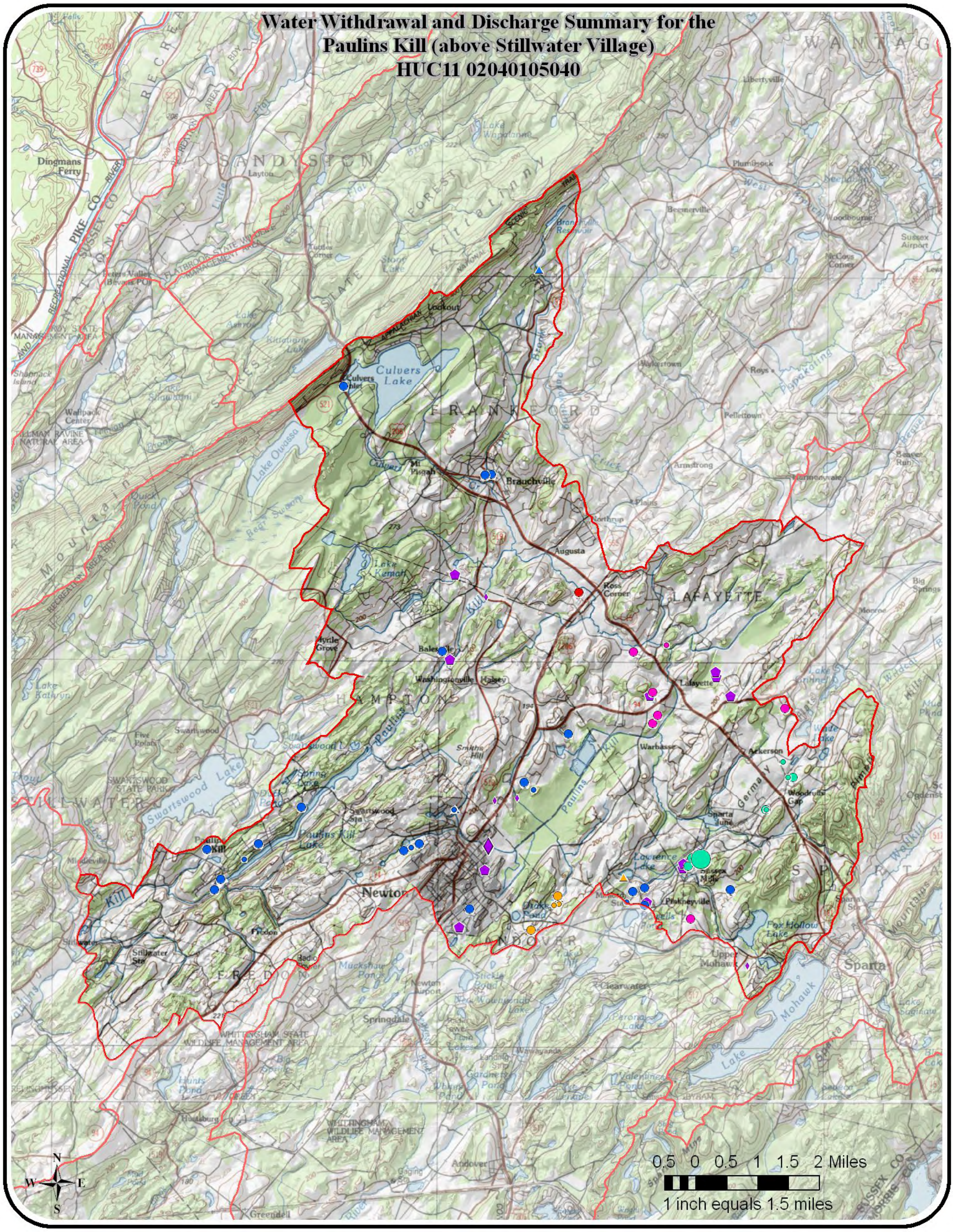
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Paulins Kill (above Stillwater Village) HUC11 02040105040



Key for Discharge Data

1999 Treated Effluent Discharge		
0 - 50	MGY	♦
50 - 100	MGY	♦
100 - 500	MGY	♦
> 500	MGY	♦
Other Permitted Discharge		⬟

Key for Withdrawal Data

Source		1999 Withdrawal		Use Group	
GW Confined	□	No 1999 Use	■●▲	Agricultural	
GW Unconfined	○	1 - 50 MGY	■●▲	Commercial	
SW	△	51 - 100 MGY	■●▲	Industrial	
		101 - 500 MGY	■●▲	Irrigation	
		> 500 MGY	■●▲	Mining	
				Not Classified	
				Potable Supply	
				Power Generation	

MGY = millions of gallons per year

Area of Detail

Water Withdrawals, Transfers and Discharges for LOWER PAULINS KILL --- 02040105050

WMA:	**Upper Delaware**	**01**
HUC11:	**Lower Paulins Kill**	**02040105050**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	3,383	1,469	1,852	2,214	3,915	2,654	4,399	1,774	2,330	1,615	2,561
sum	3,383	1,469	1,852	2,214	3,915	2,654	4,399	1,774	2,330	1,615	2,561
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	257	253	253	262	263	263	269	274	284	274	265
sum	257	253	253	262	263	263	269	274	284	274	265
total withdrawals:	3,640	1,723	2,105	2,476	4,178	2,917	4,669	2,048	2,614	1,889	2,826

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	0	0	0	0	0	0	0	0	0	0	0
exports[11]	0	0	0	0	0	0	0	0	0	0	0
net	0	0	0	0	0	0	0	0	0	0	0

Fig 1. Average Source of Fresh Water

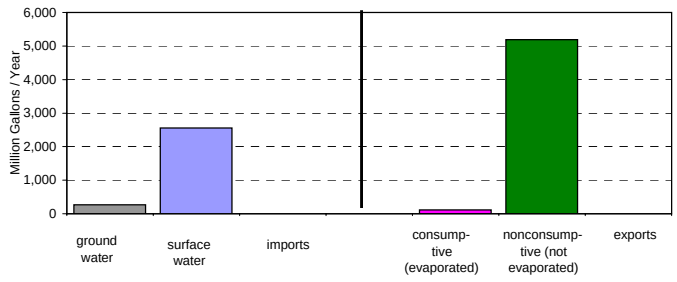


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	3,310	1,439	1,820	2,176	3,829	2,603	4,309	1,749	2,298	1,555	2,509
consumptive	3	14	8	9	10	3	4	4	4	2	6
domestic wells											
nonconsumptive	188	189	190	194	197	202	205	208	211	215	200
consumptive	26	27	27	27	28	28	29	29	30	30	28
industrial & commercial & mining											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrigation											
nonconsumptive	1	1	1	1	1	1	1	1	1	5	1
consumptive	8	13	10	9	9	11	8	11	10	40	13
power generation											
nonconsumptive	3,286	1,417	1,793	2,146	3,803	2,573	4,276	1,716	2,259	1,529	2,480
consumptive	88	38	48	57	102	69	114	46	60	41	66
SUM:											
nonconsumptive	6,785	3,046	3,805	4,517	7,831	5,378	8,790	3,675	4,769	3,304	5,190
consumptive	126	91	92	103	149	112	155	90	104	114	113
PERCENTAGES:											
nonconsumptive	98.2%	97.1%	97.6%	97.8%	98.1%	98.0%	98.3%	97.6%	97.9%	96.7%	97.9%
consumptive	1.8%	2.9%	2.4%	2.2%	1.9%	2.0%	1.7%	2.4%	2.1%	3.3%	2.1%

Figure 3. Consumptive & Nonconsumptive Use

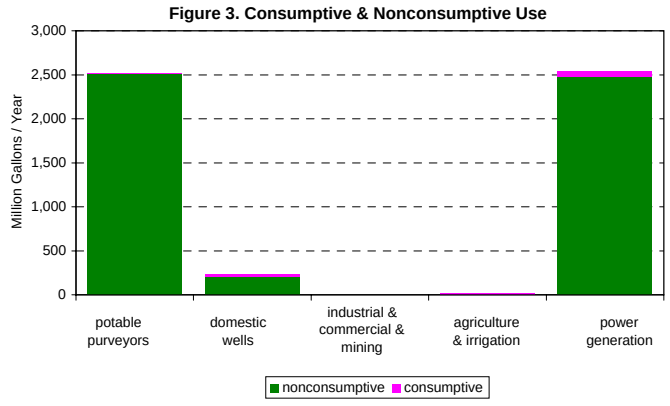


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	8	1	8	2	6	3	8	2	30	8
domestic wells	46	0	47	3	58	20	49	4	200	28
industrial & commercial & mining	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrig.	0	0	0	1	1	10	0	1	1	13
power generation	873	23	940	25	300	8	366	10	2,480	66
SUM:	927	24	995	31	366	42	423	17	2,711	115

Figure 4. Average Seasonal Consumptive Water Loss, by Use

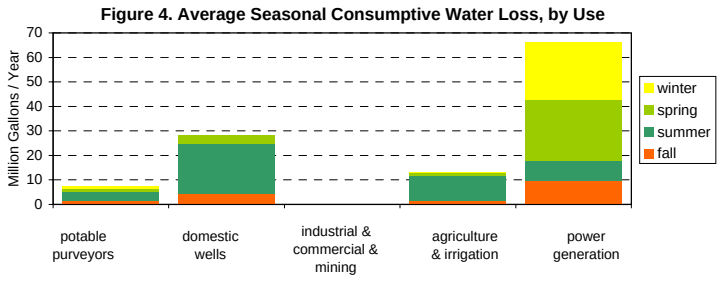


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	2	2	7	9	8	6	5	16	11	10	8
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0

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	2	2	7	9	8	6	5	16	11	10	8
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	2	2	7	9	8	6	5	16	11	10	8

Figure 5. Average Sewage Generation & Transfers

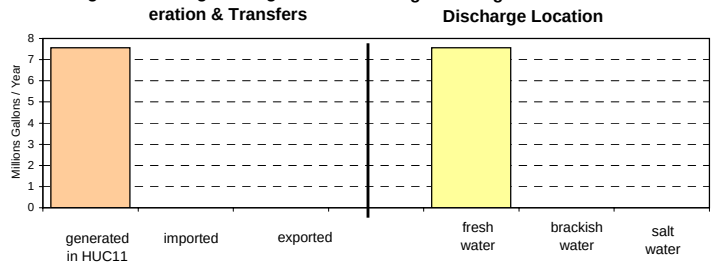


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	1,200,145
ground water	37
total	1,200,183

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	145
commercial	0
industrial	0
irrigation	0
mining	0
potable supply	37
power generation	1,200,000
total	1,200,183

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	69.8	sq. mi.
upstream HUC11s	107.1	sq. mi.
total watershed	177.0	sq. mi.
(this HUC11 onshore area:	69.8	sq. mi.)

--- Population of this HUC11:

Year	Population	Change	
1940	2,151	-	
1950	2,370	10.2%	
1960	2,808	18.5%	
1970	3,676	30.9%	
1980	6,508	77.1%	
1990	7,844	20.5%	
2000	8,525	8.7%	
2010	9,168	7.5%	est.[12]
2020	9,821	7.1%	est.[12]
2030	10,461	6.5%	est.[12]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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:

Pinelands:	0.0%
Highlands:	8.9%

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)
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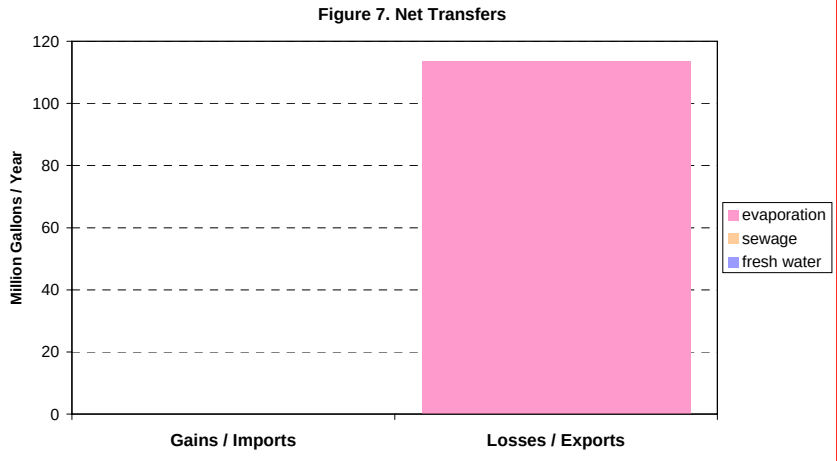
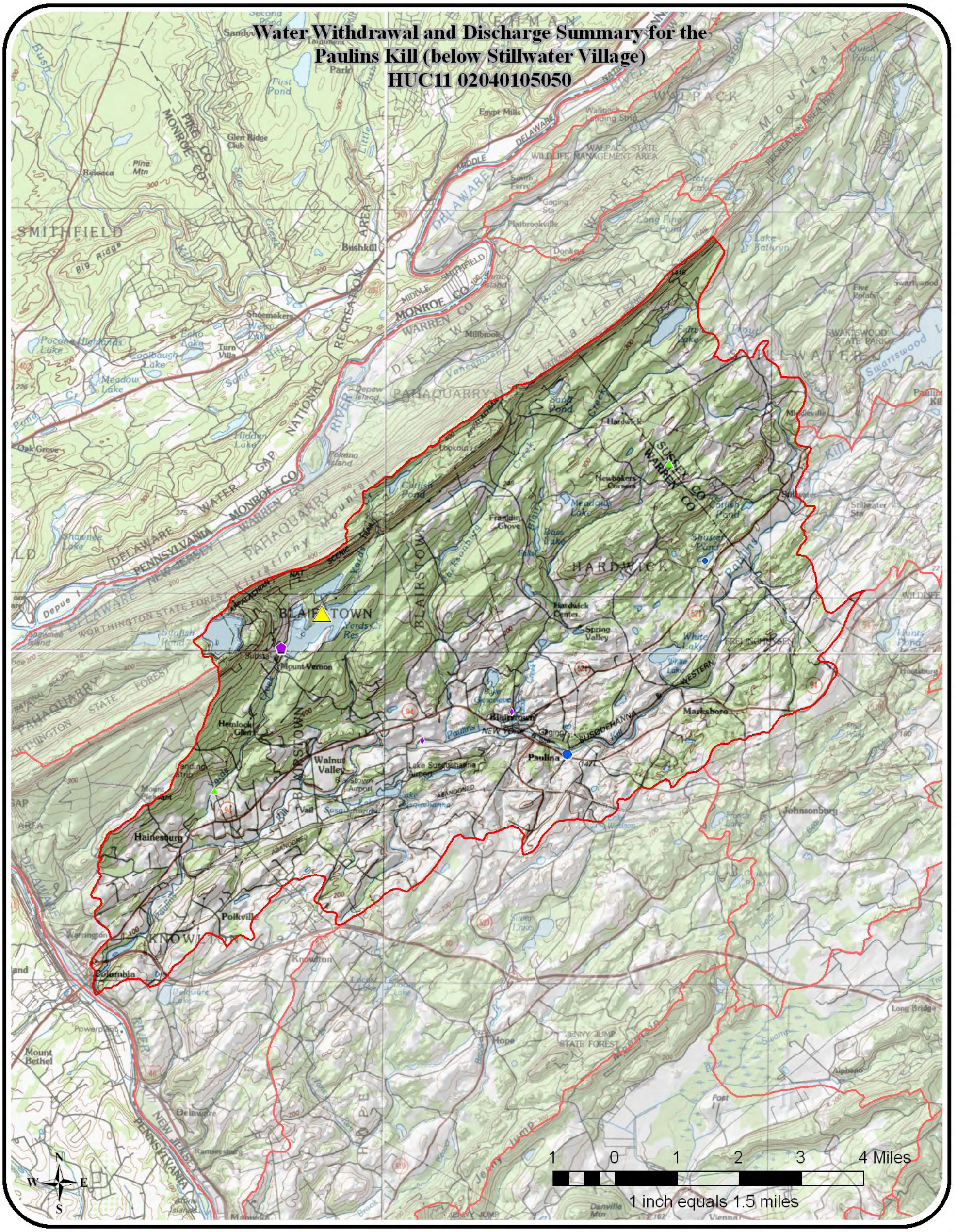
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Paulins Kill (below Stillwater Village) HUC11 02040105050



Key for Discharge Data

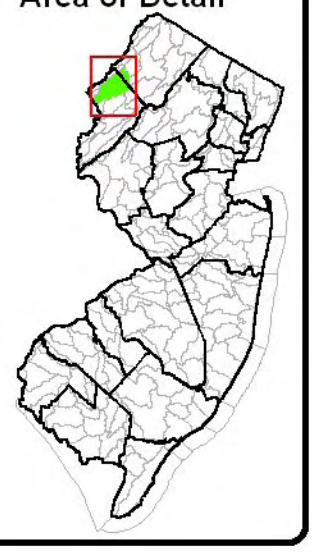
1999 Treated Effluent Discharge		
0 - 50	MGY	♦
50 - 100	MGY	♦
100 - 500	MGY	♦
> 500	MGY	♦
Other Permitted Discharge		⬟

Key for Withdrawal Data

Source		1999 Withdrawal		Use Group	
GW Confined	□	No 1999 Use	■●▲	Agricultural	
GW Unconfined	○	1 - 50 MGY	■●▲	Commercial	
SW	△	51 - 100 MGY	■●▲	Industrial	
		101 - 500 MGY	■●▲	Irrigation	
		> 500 MGY	■●▲	Mining	
				Not Classified	
				Potable Supply	
				Power Generation	

MGY = millions of gallons per year

Area of Detail



Water Withdrawals, Transfers and Discharges for STONY BROOK / DELAWANNA CREEK --- 02040105060

WMA:	**Upper Delaware**	**01**
HUC11:	**Stony Brook / Delawanna Creek**	**02040105060**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	948	1,038	1,002	991	948	707	931	815	609	799
other	53,961	53,076	53,076	53,076	40,475	53,076	39,843	26,178	39,699	53,364	46,582
sum	53,961	54,024	54,114	54,078	41,466	54,024	40,550	27,109	40,514	53,973	47,381
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	197	203	236	217	235	287	289	287	290	319	256
sum	197	203	236	217	235	287	289	287	290	319	256
total withdrawals:	54,159	54,227	54,350	54,295	41,701	54,311	40,839	27,396	40,804	54,291	47,637

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	22	23	23	17	17	20	19	19	21	24	20
exports[11]	0	0	0	0	0	0	0	0	0	0	0
net	22	23	23	17	17	20	19	19	21	24	20

Fig 1. Average Source of Fresh Water

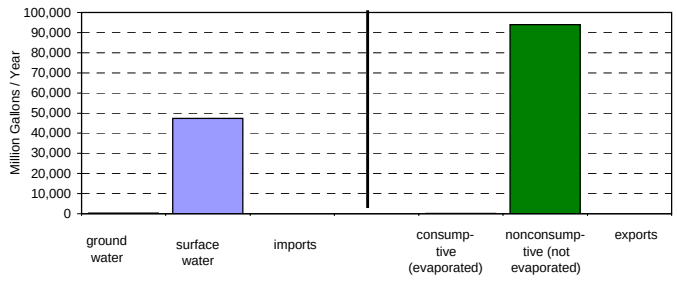


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	53,096	53,097	53,096	53,092	40,490	53,094	39,860	26,195	39,718	53,385	46,512
consumptive	2	2	2	2	2	2	2	2	2	3	2
domestic wells											
nonconsumptive	55	56	57	58	59	60	61	62	63	64	59
consumptive	8	8	8	8	8	8	9	9	9	9	8
industrial & commercial & mining											
nonconsumptive	918	979	1,089	1,038	1,043	1,050	834	1,032	930	769	968
consumptive	102	109	121	115	116	117	93	115	103	85	108
agricultural & non-agricultural irrigation											
nonconsumptive	1	1	1	1	1	1	1	1	1	1	1
consumptive	8	8	8	8	8	8	8	8	8	8	8
power generation											
nonconsumptive	53,076	53,076	53,076	53,076	40,475	53,076	39,843	26,178	39,699	53,364	46,494
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	107,146	107,208	107,319	107,264	82,068	107,281	80,599	53,468	80,410	107,583	94,034
consumptive	120	127	139	133	134	135	111	133	122	105	126
PERCENTAGES:											
nonconsumptive	99.9%	99.9%	99.9%	99.9%	99.8%	99.9%	99.9%	99.8%	99.8%	99.9%	99.9%
consumptive	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	0.2%	0.2%	0.1%	0.1%

Figure 3. Consumptive & Nonconsumptive Use

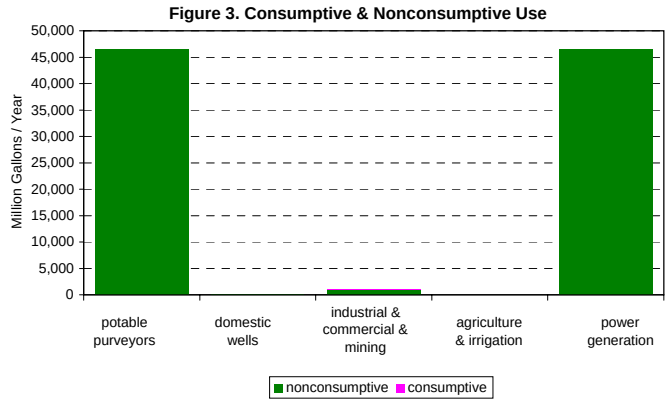


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	5	0	5	0	4	1	5	0	18	2
domestic wells	14	0	14	1	17	6	15	1	59	8
industrial & 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
SUM:	13,504	26	13,435	30	10,593	42	10,008	29	47,541	126

Figure 4. Average Seasonal Consumptive Water Loss, by Use

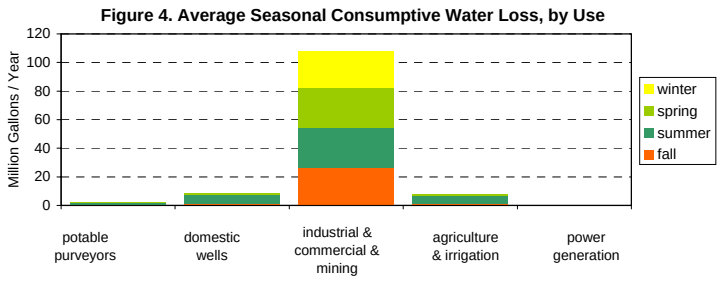


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	3	4	4	4	4	4	3	2	2	3	3
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	2	2	3	3	3	3	3	2	2	3	3

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	1	1	1	1	1	1	0	0	0	0	1
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	1	1	1	1	1	1	0	0	0	0	1

Figure 5. Average Sewage Generation & Transfers

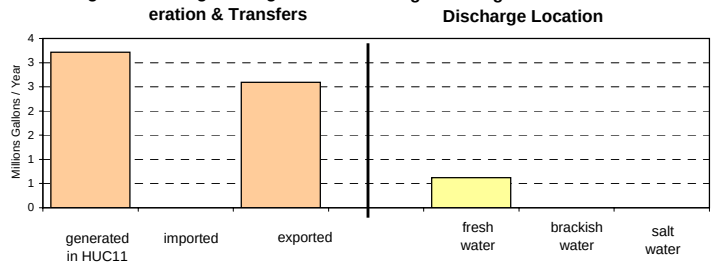


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

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

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	72
commercial	0
industrial	2,869
irrigation	0
mining	0
potable supply	0
power generation	54,084
total	57,025

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	19.7	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	19.7	sq. mi.
(this HUC11 onshore area:	18.8	sq. mi.)

--- Population of this HUC11:

Year	Population	Change	
1940	1,013	-	
1950	1,174	15.9%	
1960	1,337	13.9%	
1970	1,579	18.1%	
1980	1,858	17.7%	
1990	2,260	21.6%	
2000	2,602	15.1%	
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	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	11.8%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040105090	Pequest River (below Bear Swamp)
(if any)		
upstream:	--	--
(if any)	--	--
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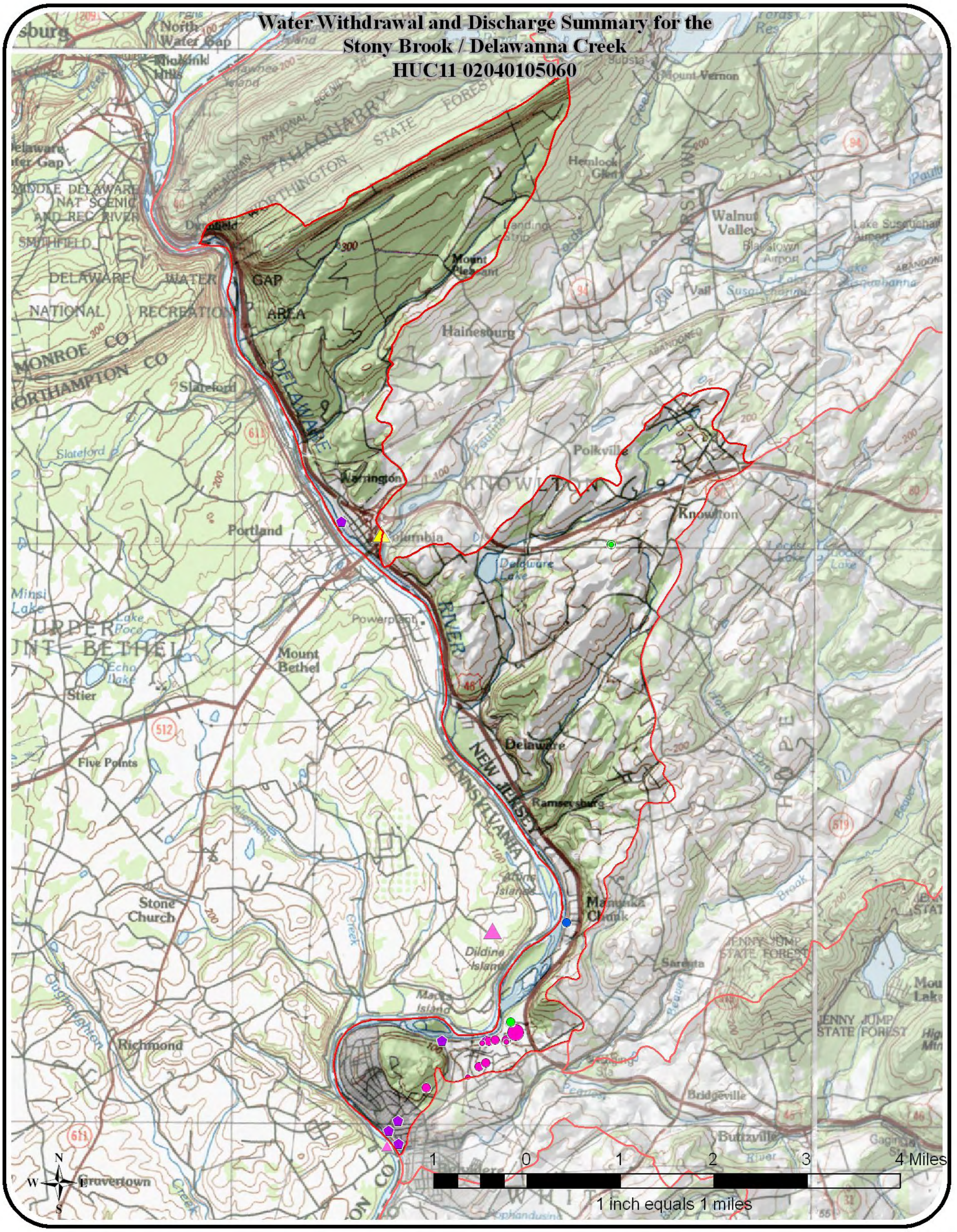
Figure 7. Net Transfers

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.

Water Withdrawal and Discharge Summary for the Stony Brook / Delawanna Creek HUC11 02040105060



Key for Discharge Data

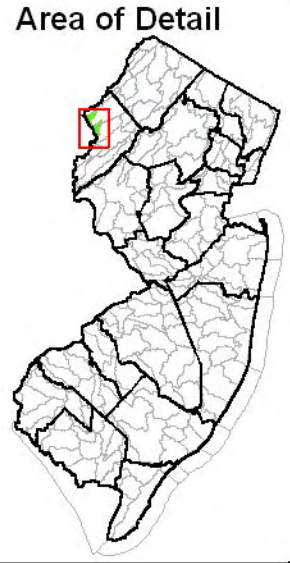
1999 Treated Effluent Discharge		
0 - 50	MGY	♦
50 - 100	MGY	♦
100 - 500	MGY	♦
> 500	MGY	♦
Other Permitted Discharge		⬟

Key for Withdrawal Data

Source		1999 Withdrawal		Use Group	
GW Confined	□	No 1999 Use	■●▲	Agricultural	●
GW Unconfined	○	1 - 50 MGY	■●▲	Commercial	●
SW	△	51 - 100 MGY	■●▲	Industrial	●
		101 - 500 MGY	■●▲	Irrigation	●
		> 500 MGY	■●▲	Mining	●
				Not Classified	●
				Potable Supply	●
				Power Generation	●

MGY = millions of gallons per year

Area of Detail



Water Withdrawals, Transfers and Discharges for UPPER PEQUEST RIVER --- 02040105070

WMA:	**Upper Delaware**	**01**
HUC11:	**Upper Pequest River**	**02040105070**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	39	26	27	43	55	93	68	81	81	89	60
sum	39	26	27	43	55	93	68	81	81	89	60
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	570	504	449	480	454	610	568	554	585	616	539
sum	570	504	449	480	454	610	568	554	585	616	539
total withdrawals:	609	530	476	523	509	703	636	636	666	705	599

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	24	24	23	24	28	31	31	33	33	30	28
exports[11]	43	44	43	48	48	51	54	55	50	45	48
net	(19)	(20)	(20)	(24)	(20)	(20)	(23)	(22)	(17)	(15)	(20)

Fig 1. Average Source of Fresh Water

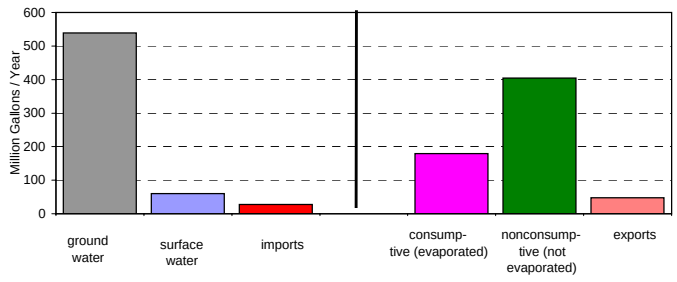


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	228	200	198	215	197	205	206	188	228	225	209
consumptive	29	24	24	29	24	26	26	26	32	29	27
domestic wells											
nonconsumptive	166	167	170	173	176	179	182	185	191	198	179
consumptive	23	24	24	24	25	25	26	26	27	28	25
industrial & commercial & mining											
nonconsumptive	7	7	3	3	2	1	0	0	0	0	2
consumptive	1	1	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrigation											
nonconsumptive	14	10	5	6	7	25	18	19	15	21	14
consumptive	129	87	41	56	66	224	159	172	138	192	126
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	416	383	376	397	383	410	405	392	434	444	404
consumptive	183	135	89	110	115	276	210	224	197	249	179
PERCENTAGES:											
nonconsumptive	69.5%	73.9%	80.9%	78.3%	76.8%	59.8%	65.9%	63.6%	68.8%	64.1%	69.3%
consumptive	30.5%	26.1%	19.1%	21.7%	23.2%	40.2%	34.1%	36.4%	31.2%	35.9%	30.7%

Figure 3. Consumptive & Nonconsumptive Use

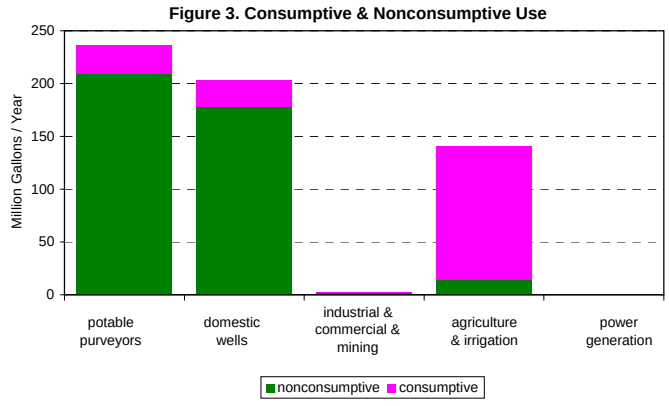


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	53	0	56	4	54	19	51	5	214	27
domestic wells	41	0	42	3	52	18	44	4	179	25
industrial & commercial & mining	1	0	1	0	0	0	0	0	2	0
agricultural & non-agricultural irrig.	0	1	3	25	8	76	3	25	14	126
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	95	1	101	32	115	113	98	33	409	179

Figure 4. Average Seasonal Consumptive Water Loss, by Use

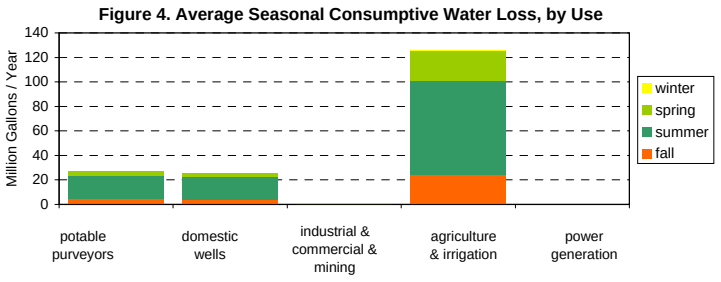


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	151	120	137	147	141	131	158	116	127	131	136
imported to HUC11	2	2	2	2	2	2	2	2	2	2	2
exported from HUC11	17	20	22	24	23	20	26	19	21	20	21

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	136	102	117	125	120	113	134	99	108	113	117
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	136	102	117	125	120	113	134	99	108	113	117

Figure 5. Average Sewage Generation & Transfers

Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	242
ground water	809
total	1,052

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	544
commercial	0
industrial	0
irrigation	74
mining	0
potable supply	433
power generation	0
total	1,052

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	54.7	sq. mi.
upstream HUC11s	18.3	sq. mi.
total watershed	73.0	sq. mi.
(this HUC11 onshore area:	54.7	sq. mi.)

--- Population of this HUC11:

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 HUC11:

Type	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	57.4%

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)	--	--
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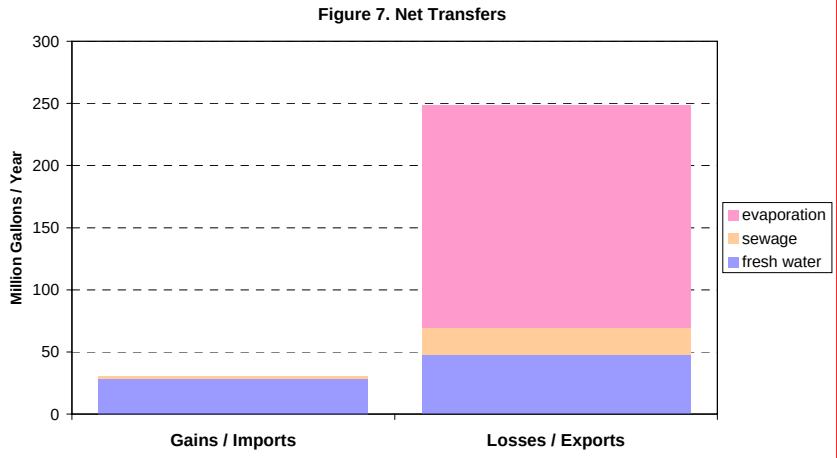
Figure 7. Net Transfers



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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.
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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.
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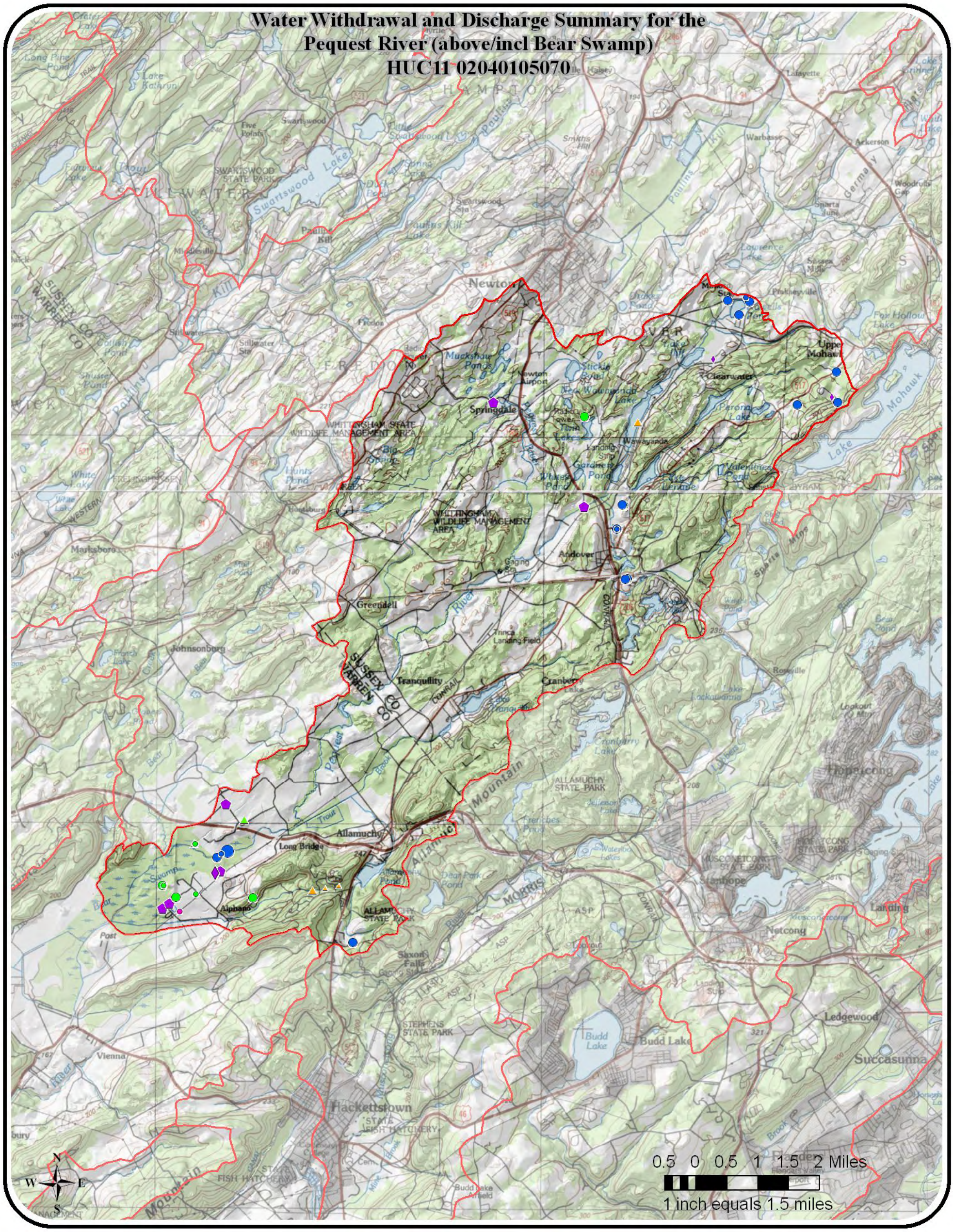
13 Subject to revision.
14 Withdrawals for offstream reservoirs are problematic and complicate Figures 1 and 2.

Water Withdrawal and Discharge Summary for the Pequest River (above/incl Bear Swamp) HUC11 02040105070



Key for Discharge Data

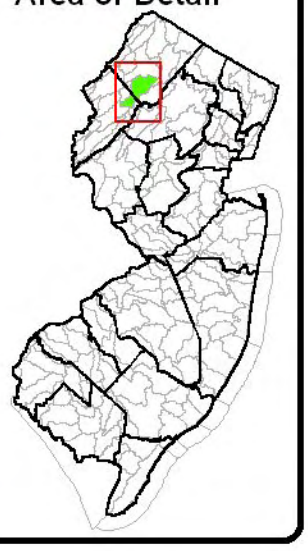
1999 Treated Effluent Discharge		
0 - 50	MGY	♦
50 - 100	MGY	♦
100 - 500	MGY	♦
> 500	MGY	♦
Other Permitted Discharge		⬟

Key for Withdrawal Data

Source		1999 Withdrawal		Use Group	
GW Confined	□	No 1999 Use	■●▲	Agricultural	
GW Unconfined	○	1 - 50 MGY	■●▲	Commercial	
SW	△	51 - 100 MGY	■●▲	Industrial	
		101 - 500 MGY	■●▲	Irrigation	
		> 500 MGY	■●▲	Mining	
				Not Classified	
				Potable Supply	
				Power Generation	

MGY = millions of gallons per year

Area of Detail



Water Withdrawals, Transfers and Discharges for BEAR CREEK --- 02040105080

WMA:	**Upper Delaware**	**01**
HUC11:	**Bear Creek**	**02040105080**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	0	0	0	0	0	0	0	0	0	0	0
sum	0	0	0	0	0	0	0	0	0	0	0
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	50	50	51	52	56	54	58	56	58	59	54
sum	50	50	51	52	56	54	58	56	58	59	54
total withdrawals:	50	50	51	52	56	54	58	56	58	59	54

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	0	0	0	0	0	0	0	0	0	0	0
exports[11]	1	1	1	1	1	1	1	1	1	1	1
net	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

Fig 1. Average Source of Fresh Water

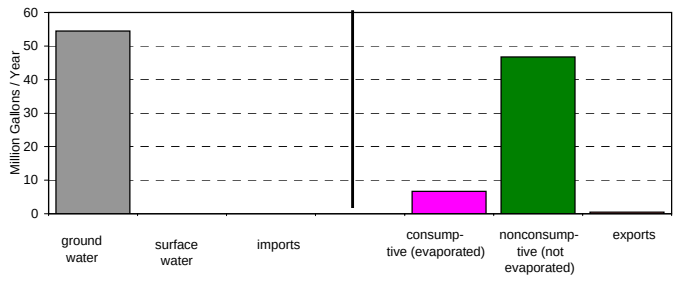


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
domestic wells											
nonconsumptive	43	44	44	45	46	47	48	49	50	51	47
consumptive	6	6	6	6	6	7	7	7	7	7	7
industrial & commercial & mining											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrigation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	43	44	44	45	46	47	48	49	50	51	47
consumptive	6	6	6	6	7	7	7	7	7	7	7
PERCENTAGES:											
nonconsumptive	87.7%	87.7%	87.7%	87.7%	87.2%	87.6%	87.2%	87.6%	87.6%	87.6%	87.6%
consumptive	12.3%	12.3%	12.3%	12.3%	12.8%	12.4%	12.8%	12.4%	12.4%	12.4%	12.4%

Figure 3. Consumptive & Nonconsumptive Use

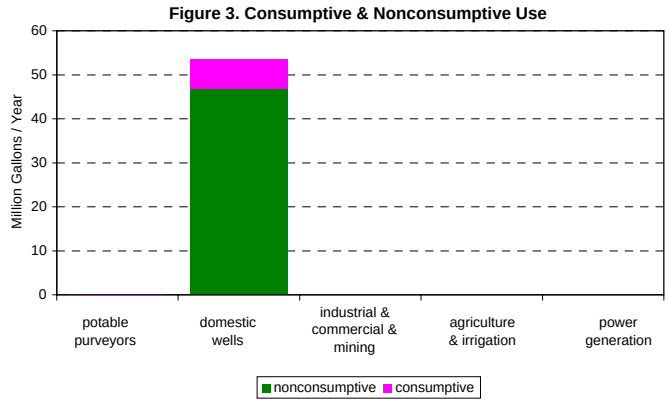


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	0	0	0	0	0	0	0	0	1	0
domestic wells	11	0	11	1	14	5	11	1	47	7
industrial & commercial & 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	0	0	0	0	0	0	0	0	0	0
SUM:	11	0	11	1	14	5	12	1	47	7

Figure 4. Average Seasonal Consumptive Water Loss, by Use

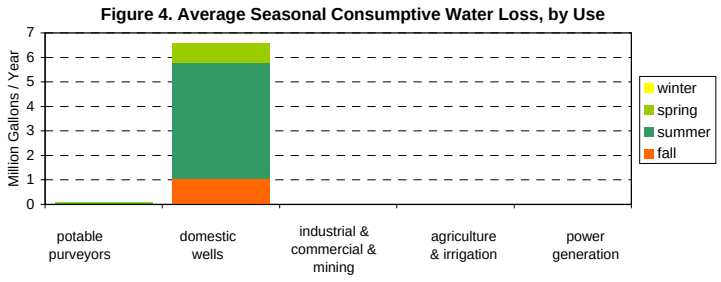


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	0	0	0	0	0	0	0	0	0	0	0
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0

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	0	0	0	0	0	0	0	0	0	0	0
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	0	0	0	0	0	0	0	0	0	0	0

Figure 5. Average Sewage Generation & Transfers

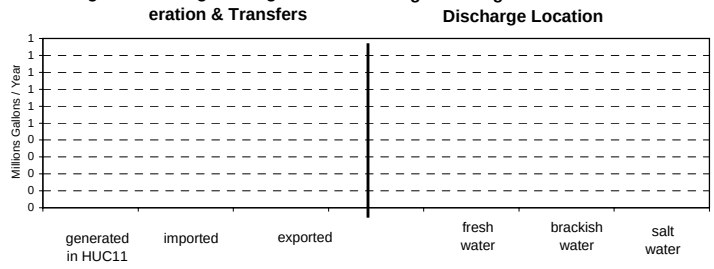


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	0
ground water	37
total	37

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	0
commercial	0
industrial	0
irrigation	0
mining	0
potable supply	37
power generation	0
total	37

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	18.3	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	18.3	sq. mi.
(this HUC11 onshore area:	18.3	sq. mi.)

--- Population of this HUC11:

Year	Population	Change	
1940	565	-	
1950	625	10.6%	
1960	770	23.2%	
1970	1,075	39.7%	
1980	1,774	65.0%	
1990	2,193	23.6%	
2000	2,482	13.2%	
2010	2,917	17.5%	est.[12]
2020	3,181	9.0%	est.[12]
2030	3,482	9.5%	est.[12]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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:

Pinelands:	0.0%
Highlands:	84.5%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040105070	Pequest River (above/incl Bear Swamp)
(if any)		
upstream:	--	--
(if any)	--	--
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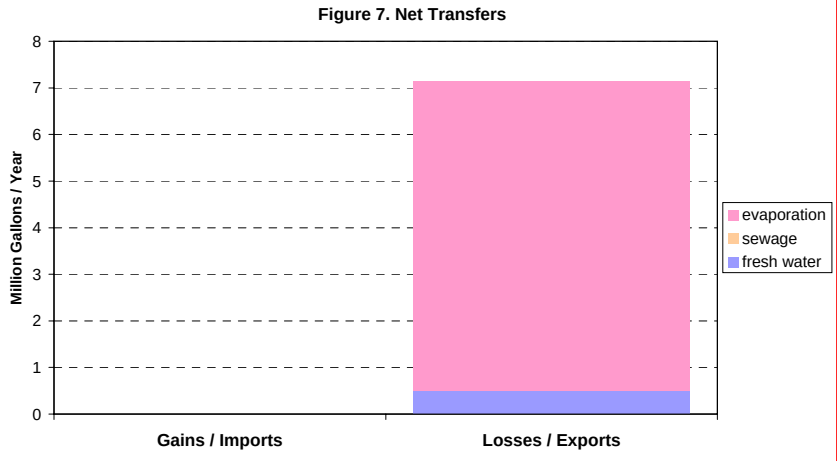
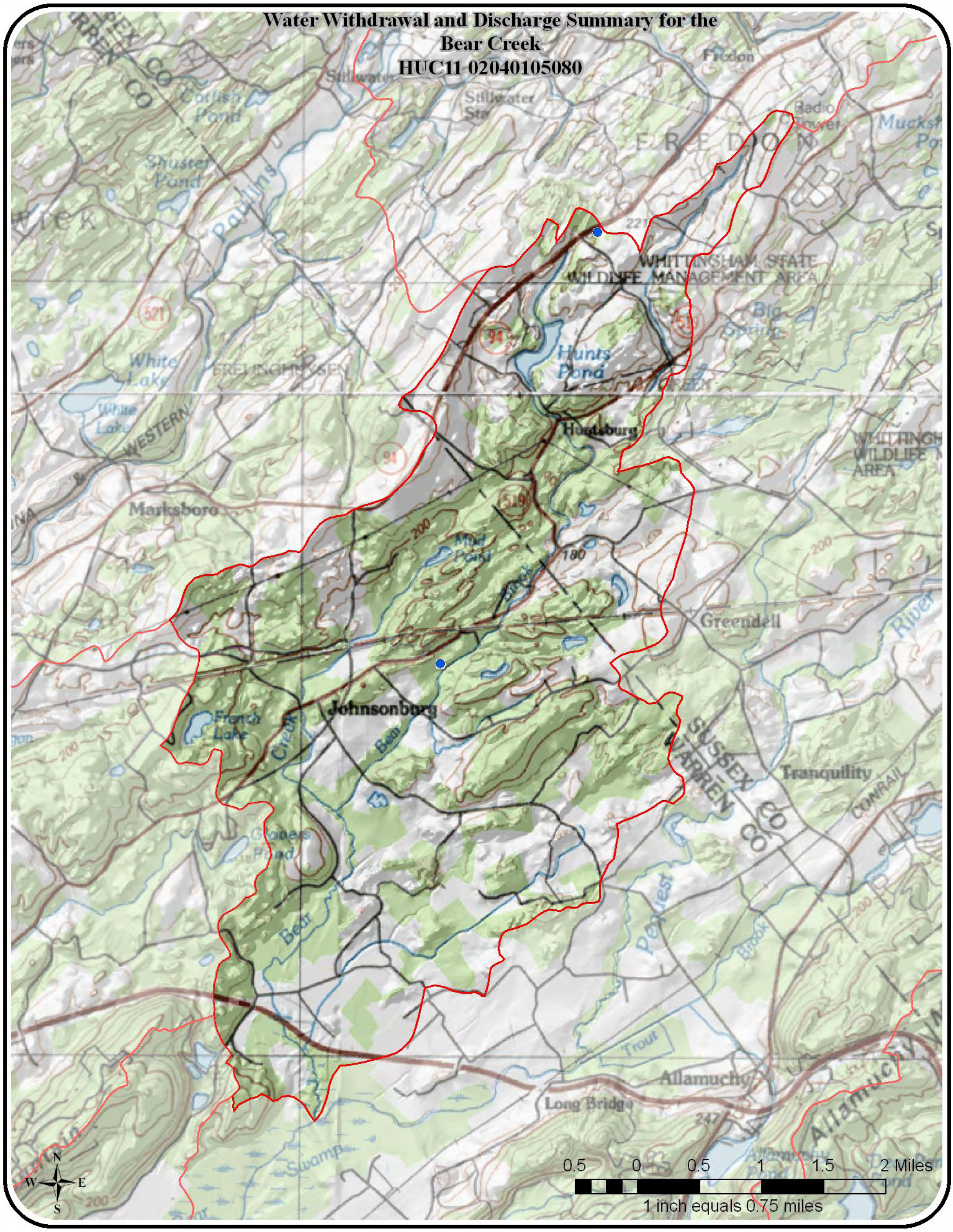
Figure 7. Net Transfers



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.



Water Withdrawal and Discharge Summary for the Bear Creek HUC11 02040105080

Key for Discharge Data

1999 Treated Effluent Discharge		
0 - 50	MGY	♦
50 - 100	MGY	♦
100 - 500	MGY	♦
> 500	MGY	♦
Other Permitted Discharge		⬟

Key for Withdrawal Data

Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal		
No 1999 Use		■●▲
1 - 50	MGY	■●▲
51 - 100	MGY	■●▲
101 - 500	MGY	■●▲
> 500	MGY	■●▲

Use Group	
Agricultural	●
Commercial	●
Industrial	●
Irrigation	●
Mining	●
Not Classified	●
Potable Supply	●
Power Generation	●

MGY = millions of gallons per year

Area of Detail

Water Withdrawals, Transfers and Discharges for LOWER PEQUEST RIVER --- 02040105090

WMA:	**Upper Delaware**	**01**
HUC11:	**Lower Pequest River**	**02040105090**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	511	519	394	414	384	530	508	484	396	266	441
sum	511	519	394	414	384	530	508	484	396	266	441
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	2,728	3,141	3,299	3,296	3,472	3,533	3,401	3,605	3,784	3,643	3,390
sum	2,728	3,141	3,299	3,296	3,472	3,533	3,401	3,605	3,784	3,643	3,390
total withdrawals:	3,239	3,660	3,693	3,710	3,856	4,063	3,909	4,089	4,180	3,909	3,831

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	59	61	60	47	45	54	51	50	56	63	55
exports[11]	0	0	0	0	0	0	0	0	0	0	0
net	59	61	60	47	45	54	51	50	56	63	55

Fig 1. Average Source of Fresh Water

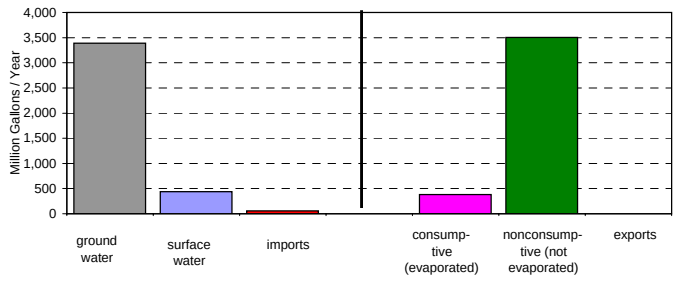


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	55	57	57	46	59	64	63	65	84	93	64
consumptive	7	6	6	5	6	7	7	8	10	12	7
domestic wells											
nonconsumptive	204	205	209	213	217	220	223	225	228	232	218
consumptive	29	29	30	30	31	31	31	32	32	33	31
industrial & commercial & mining											
nonconsumptive	511	465	405	450	410	427	445	431	380	219	414
consumptive	57	52	45	50	46	47	49	48	42	24	46
agricultural & non-agricultural irrigation											
nonconsumptive	2,170	2,632	2,825	2,783	2,905	2,906	2,811	2,965	3,113	2,958	2,807
consumptive	267	275	176	180	228	414	331	366	346	399	298
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	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
consumptive	359	361	257	265	311	500	418	454	430	468	382
PERCENTAGES:											
nonconsumptive	89.1%	90.3%	93.2%	92.9%	92.0%	87.9%	89.4%	89.0%	89.9%	88.2%	90.2%
consumptive	10.9%	9.7%	6.8%	7.1%	8.0%	12.1%	10.6%	11.0%	10.1%	11.8%	9.8%

Figure 3. Consumptive & Nonconsumptive Use

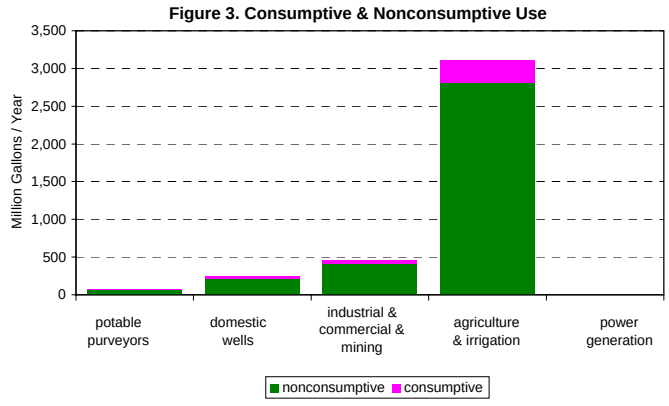


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	17	0	16	1	14	5	17	1	64	7
domestic wells	50	0	51	4	63	22	53	5	218	31
industrial & commercial & mining	102	11	111	12	101	11	101	11	414	46
agricultural & non-agricultural irrig.	565	30	697	65	951	148	594	55	2,807	298
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	735	41	874	82	1,129	187	765	72	3,503	382

Figure 4. Average Seasonal Consumptive Water Loss, by Use

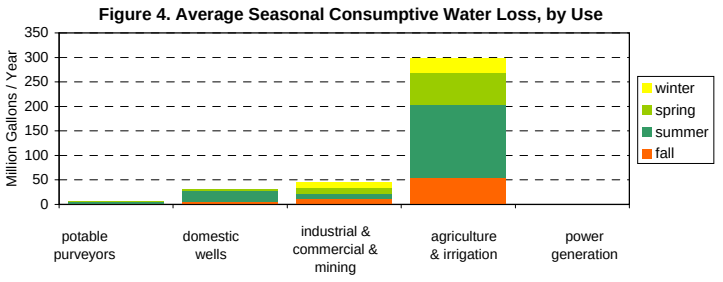


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	99	107	114	123	131	120	140	123	125	123	120
imported to HUC11	13	15	15	17	18	16	20	18	18	17	17
exported from HUC11	35	38	43	41	45	43	46	37	39	41	41

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	77	84	87	99	103	93	113	104	105	99	96
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	77	84	87	99	103	93	113	104	105	99	96

Figure 5. Average Sewage Generation & Transfers

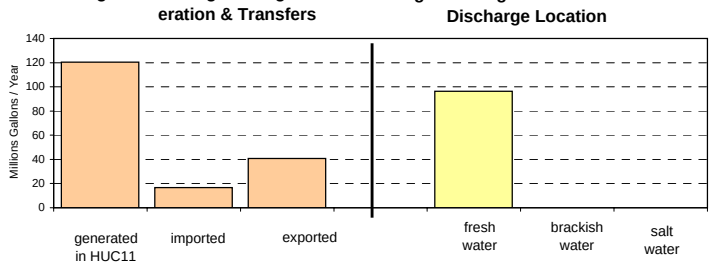


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by 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

Use Group	MGY
agricultural	5,203
commercial	0
industrial	575
irrigation	0
mining	0
potable supply	105
power generation	0
total	5,883

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	47.4	sq. mi.
upstream HUC11s	109.7	sq. mi.
total watershed	157.1	sq. mi.
(this HUC11 onshore area:	47.4	sq. mi.)

--- Population of this HUC11:

Year	Population	Change	
1940	4,690	-	
1950	5,162	10.1%	
1960	6,195	20.0%	
1970	7,587	22.5%	
1980	8,941	17.8%	
1990	11,267	26.0%	
2000	13,380	18.8%	
2010	15,655	17.0%	est.[12]
2020	16,642	6.3%	est.[12]
2030	17,557	5.5%	est.[12]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	100.0%

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
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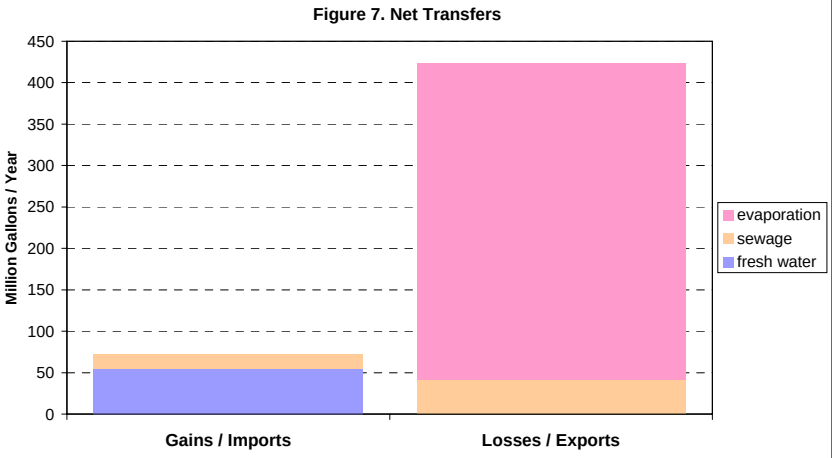
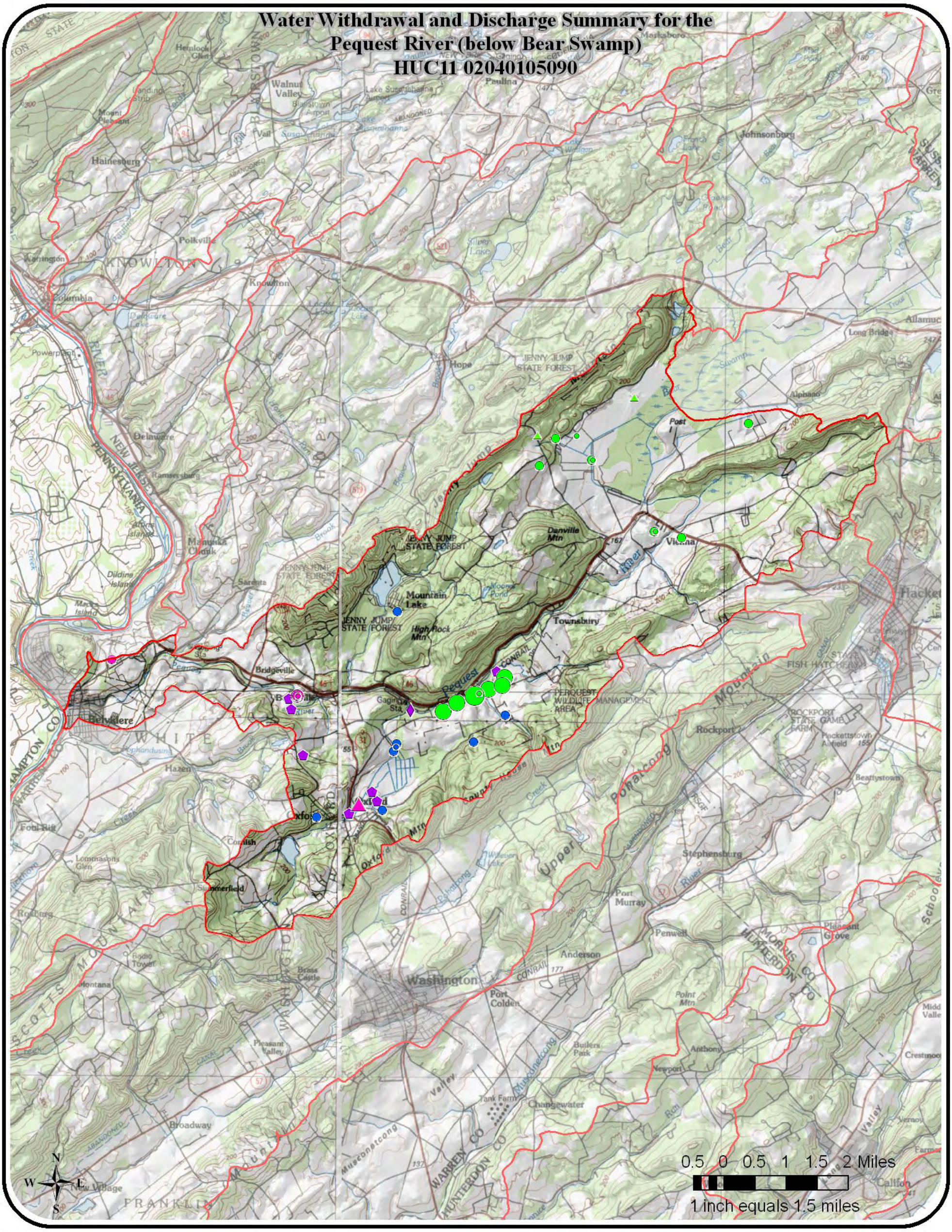
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Pequest River (below Bear Swamp) HUC11 02040105090



Key for Discharge Data

1999 Treated Effluent Discharge	
0 - 50	MGY
50 - 100	MGY
100 - 500	MGY
> 500	MGY
Other Permitted Discharge	

Key for Withdrawal Data

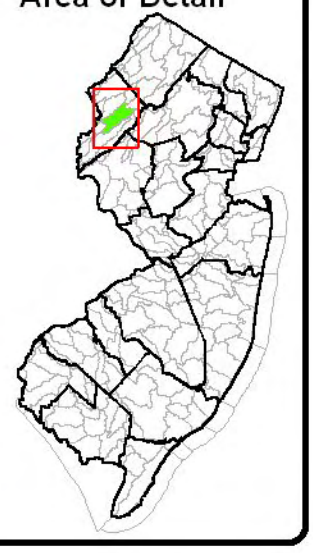
Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal		
No 1999 Use		■●▲
1 - 50	MGY	■●▲
51 - 100	MGY	■●▲
101 - 500	MGY	■●▲
> 500	MGY	■●▲

MGY = millions of gallons per year

Use Group	
Agricultural	
Commercial	
Industrial	
Irrigation	
Mining	
Not Classified	
Potable Supply	
Power Generation	

Area of Detail



Water Withdrawals, Transfers and Discharges for BEAVER BROOK --- 02040105100

WMA:	**Upper Delaware**	**01**
HUC11:	**Beaver Brook**	**02040105100**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	25	22	19	9	30	29	9	9	9	9	17
sum	25	22	19	9	30	29	9	9	9	9	17
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	172	160	146	125	203	181	127	130	131	146	152
sum	172	160	146	125	203	181	127	130	131	146	152
total withdrawals:	197	183	164	134	233	210	136	139	140	155	169

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	0	0	0	0	0	0	0	0	0	0	0
exports[11]	0	0	0	0	0	0	0	0	0	0	0
net	0	0	0	0	0	0	0	0	0	0	0

Fig 1. Average Source of Fresh Water

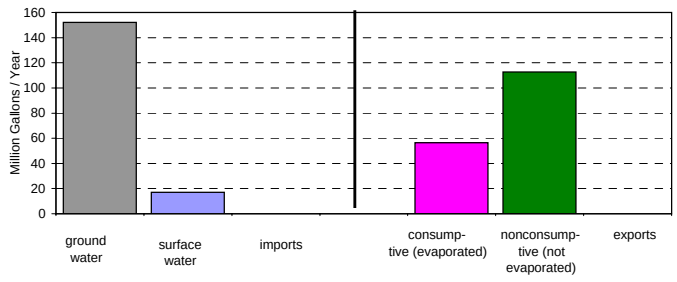


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
domestic wells											
nonconsumptive	101	102	103	105	107	109	111	112	114	116	108
consumptive	14	14	15	15	15	15	16	16	16	16	15
industrial & commercial & mining											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrigation											
nonconsumptive	8	7	5	1	11	9	1	1	1	2	5
consumptive	73	60	42	12	99	77	9	10	9	21	41
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	110	109	108	106	118	118	112	113	115	118	113
consumptive	88	74	57	27	114	92	25	26	25	37	56
PERCENTAGES:											
nonconsumptive	55.5%	59.4%	65.6%	79.7%	50.9%	56.2%	82.0%	81.4%	81.9%	76.0%	66.6%
consumptive	44.5%	40.6%	34.4%	20.3%	49.1%	43.8%	18.0%	18.6%	18.1%	24.0%	33.4%

Figure 3. Consumptive & Nonconsumptive Use

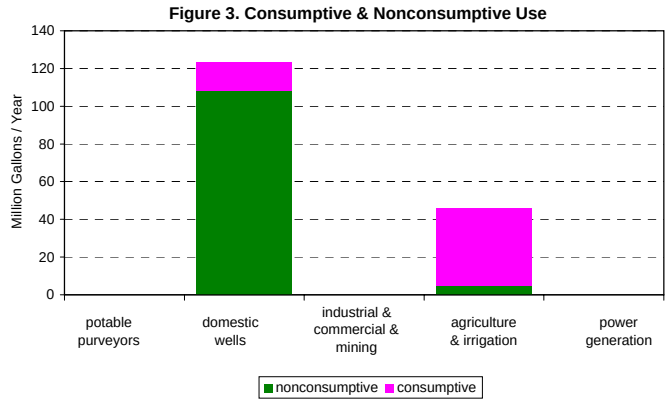


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	0	0	0	0	0	0	0	0	0	0
domestic wells	25	0	25	2	31	11	26	2	108	15
industrial & commercial & mining	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrig.	0	0	1	5	3	25	1	10	5	41
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	25	0	26	7	34	36	28	13	113	56

Figure 4. Average Seasonal Consumptive Water Loss, by Use

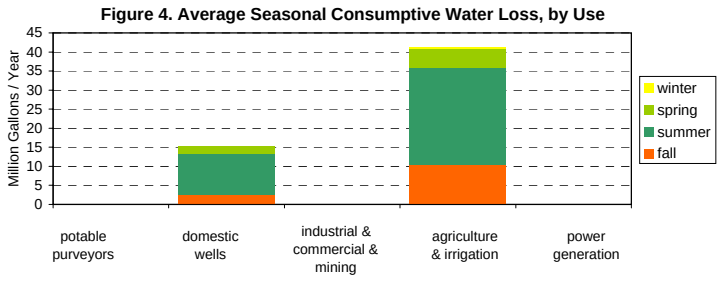


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	0	1	1	1	1	1	1	1	1	1	1
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	0	1	1	1	1	1	1	1	1	1	1

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	0	0	0	0	0	0	0	0	0	0	0
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	0	0	0	0	0	0	0	0	0	0	0

Figure 5. Average Sewage Generation & Transfers

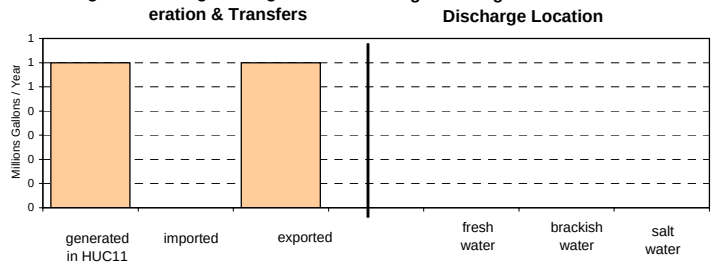


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	51
ground water	79
total	130

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	130
commercial	0
industrial	0
irrigation	0
mining	0
potable supply	0
power generation	0
total	130

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	36.7	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	36.7	sq. mi.
(this HUC11 onshore area:	36.7	sq. mi.)

--- Population of this HUC11:

Year	Population	Change	
1940	1,351	-	
1950	1,468	8.7%	
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%	
2010	4,717	10.9%	est.[12]
2020	5,080	7.7%	est.[12]
2030	5,443	7.1%	est.[12]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	83.6%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040105090	Pequest River (below Bear Swamp)
(if any)		
upstream:	--	--
(if any)	--	--
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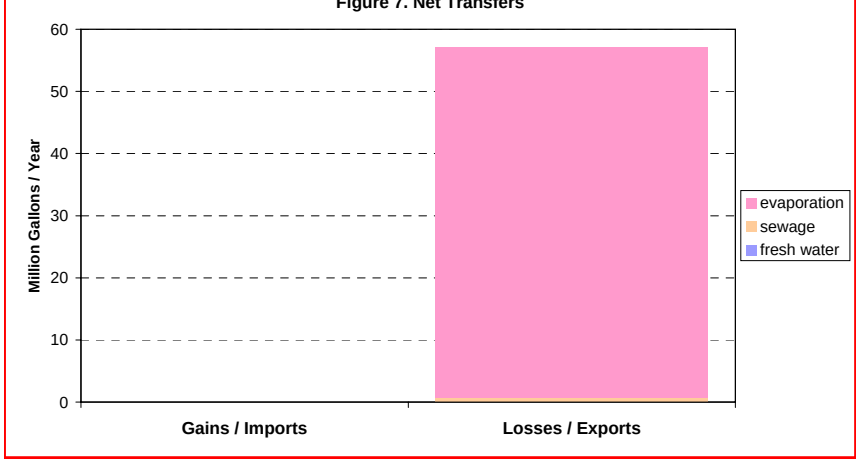
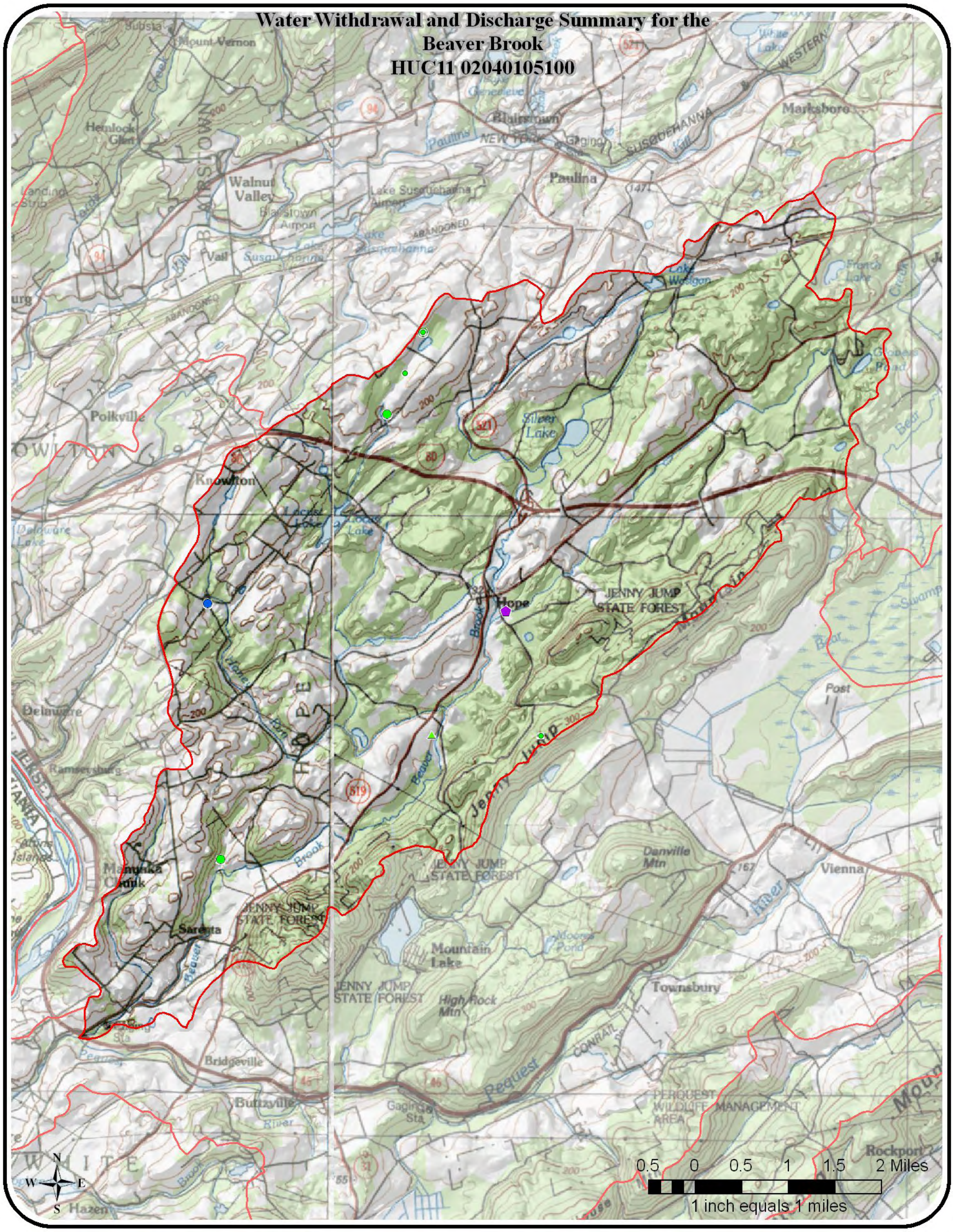
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Beaver Brook HUC11 02040105100



Key for Discharge Data

1999 Treated Effluent Discharge	
0 - 50	MGY
50 - 100	MGY
100 - 500	MGY
> 500	MGY
Other Permitted Discharge	

Key for Withdrawal Data

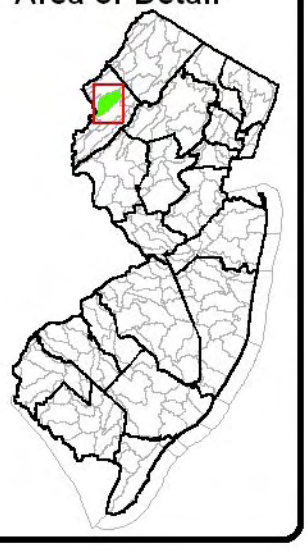
Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal		
No 1999 Use		■●▲
1 - 50	MGY	■●▲
51 - 100	MGY	■●▲
101 - 500	MGY	■●▲
> 500	MGY	■●▲

MGY = millions of gallons per year

Use Group	
Agricultural	
Commercial	
Industrial	
Irrigation	
Mining	
Not Classified	
Potable Supply	
Power Generation	

Area of Detail



Water Withdrawals, Transfers and Discharges for POPHANDUSING BROOK / BUCKHORN CREEK --- 02040105110

WMA:	**Upper Delaware**	**01**
HUC11:	**Pophandusing Brook / Buckhorn Creek**	**02040105110**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	1	1	2,200	3	36	197	314	27	676	1,018	447
other	1	0	0	0	1	2	1	0	2	1	1
sum	1	1	2,200	3	37	199	315	27	678	1,019	448
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	1,978	2,164	2,062	2,114	1,696	1,614	1,866	1,889	1,996	2,048	1,943
sum	1,978	2,164	2,062	2,114	1,696	1,614	1,866	1,889	1,996	2,048	1,943
total withdrawals:	1,979	2,165	4,262	2,116	1,733	1,812	2,181	1,916	2,674	3,068	2,390

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	2	0	2	4	109	74	59	0	0	1	25
exports[11]	852	905	869	908	591	561	625	770	884	904	787
net	(850)	(905)	(866)	(904)	(482)	(487)	(565)	(770)	(884)	(903)	(762)

Fig 1. Average Source of Fresh Water

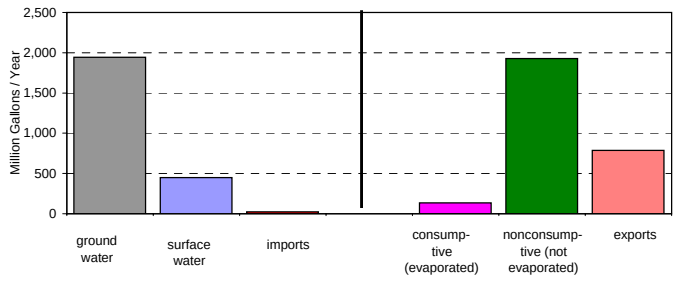


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	365	388	2,516	392	385	496	624	352	1,032	1,374	792
consumptive	41	43	41	44	38	36	36	37	43	45	40
domestic wells											
nonconsumptive	82	83	84	85	87	88	89	90	91	92	87
consumptive	12	12	12	12	12	12	13	13	13	13	12
industrial & commercial & mining											
nonconsumptive	564	660	615	608	652	612	750	580	525	543	611
consumptive	63	73	68	68	73	69	88	65	59	61	69
agricultural & non-agricultural irrigation											
nonconsumptive	0	0	0	0	0	0	0	0	0	1	0
consumptive	2	2	2	2	4	3	3	3	4	5	3
power generation											
nonconsumptive	1	1	2,143	2	35	192	305	26	658	991	436
consumptive	0	0	57	0	1	5	8	1	18	26	12
SUM:											
nonconsumptive	1,013	1,131	5,358	1,088	1,159	1,388	1,768	1,049	2,307	3,001	1,926
consumptive	117	130	180	126	128	125	148	119	137	150	136
PERCENTAGES:											
nonconsumptive	89.6%	89.7%	96.7%	89.6%	90.1%	91.7%	92.3%	89.8%	94.4%	95.2%	93.4%
consumptive	10.4%	10.3%	3.3%	10.4%	9.9%	8.3%	7.7%	10.2%	5.6%	4.8%	6.6%

Figure 3. Consumptive & Nonconsumptive Use

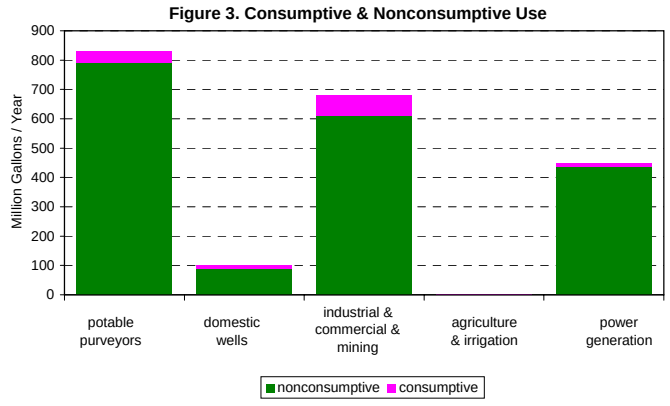


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	98	0	94	6	77	27	90	8	359	40
domestic wells	20	0	20	1	25	9	21	2	87	12
industrial & commercial & mining	146	16	155	17	157	18	153	17	611	69
agricultural & non-agricultural irrig.	0	0	0	1	0	1	0	1	0	3
power generation	281	8	114	3	28	1	13	0	436	12
SUM:	545	24	383	29	288	55	277	28	1,493	136

Figure 4. Average Seasonal Consumptive Water Loss, by Use

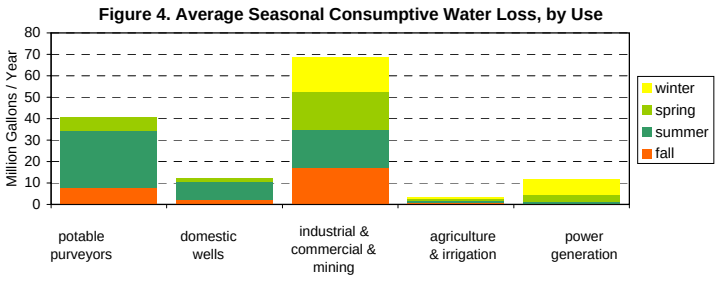


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	110	175	166	184	209	188	195	172	176	178	176
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 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	83	93	105	101	111	106	112	92	94	101	100
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	83	93	105	101	111	106	112	92	94	101	100

Figure 5. Average Sewage Generation & Transfers

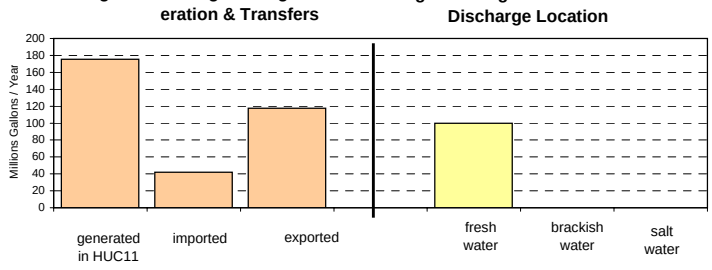


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	26,173
ground water	2,413
total	28,586

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	0
commercial	0
industrial	827
irrigation	74
mining	78
potable supply	1,471
power generation	26,136
total	28,586

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	28.2	sq. mi.
upstream HUC11s	36.7	sq. mi.
total watershed	64.9	sq. mi.
(this HUC11 onshore area:	27.6	sq. mi.)

--- Population of this HUC11:

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]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
ag.	46.4%	42.9%	-3.5%
barren	1.2%	2.6%	1.4%
forest	34.0%	34.2%	0.1%
urban	12.3%	14.2%	1.9%
water	2.8%	2.9%	0.1%
wetlands	3.2%	3.2%	0.0%

--- % of this HUC11 in:

Pinelands:	0.0%
Highlands:	100.0%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040105120	Lopatcong Creek
(if any)		
upstream:	02040105100	Beaver Brook
(if any)	--	--
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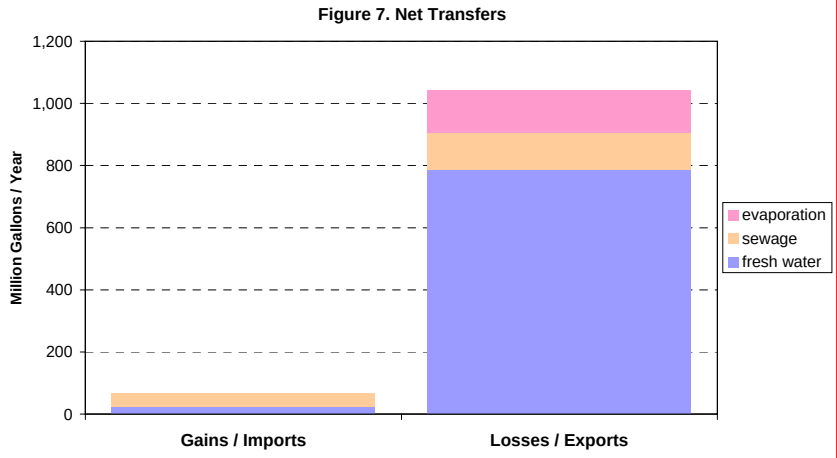
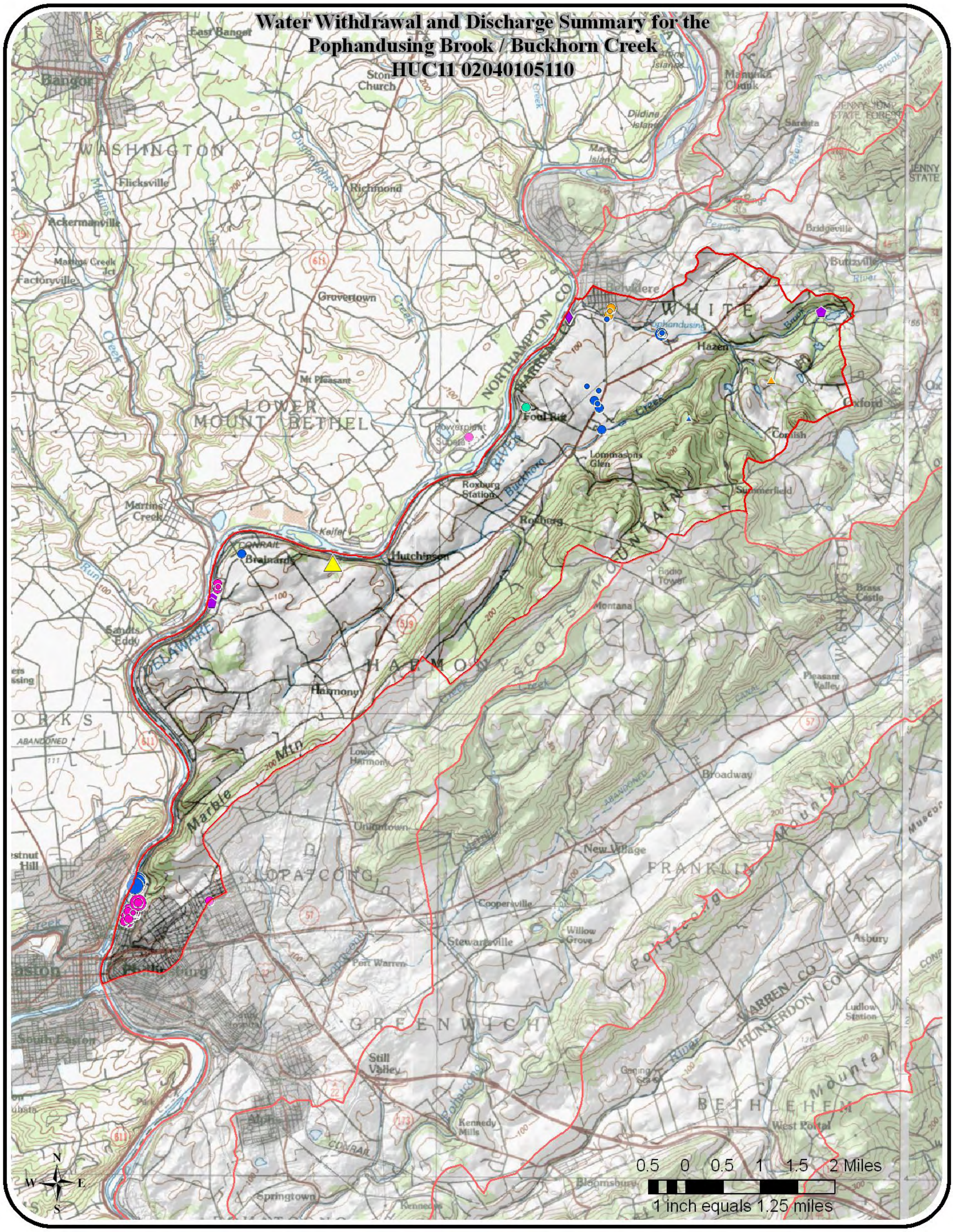
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Pophandusing Brook / Buckhorn Creek HUC11 02040105110



Key for Discharge Data

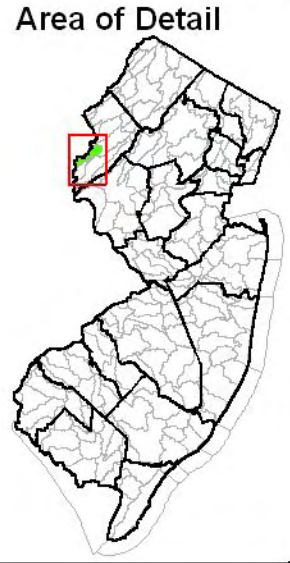
1999 Treated Effluent Discharge		
0 - 50	MGY	♦
50 - 100	MGY	♦
100 - 500	MGY	♦
> 500	MGY	♦
Other Permitted Discharge		⬟

Key for Withdrawal Data

Source		1999 Withdrawal			Use Group	
GW Confined	□	No 1999 Use		■●▲	Agricultural	
GW Unconfined	○	1 - 50	MGY	■●▲	Commercial	
SW	△	51 - 100	MGY	■●▲	Industrial	
		101 - 500	MGY	■●▲	Irrigation	
		> 500	MGY	■●▲	Mining	
					Not Classified	
					Potable Supply	
					Power Generation	

MGY = millions of gallons per year

Area of Detail



Water Withdrawals, Transfers and Discharges for LOPATCONG CREEK --- 02040105120

WMA:	**Upper Delaware**	**01**
HUC11:	**Lopatcong Creek**	**02040105120**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	0	0	0	0	0	0	0	0	0	0	0
sum	0	0	0	0	0	0	0	0	0	0	0
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	195	181	193	254	884	471	408	229	256	280	335
sum	195	181	193	254	884	471	408	229	256	280	335
total withdrawals:	195	181	193	254	884	471	408	229	256	280	335

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	830	885	848	904	595	555	618	759	862	875	773
exports[11]	2	0	3	4	112	75	60	0	0	1	26
net	828	885	846	901	483	480	557	759	862	874	747

Fig 1. Average Source of Fresh Water

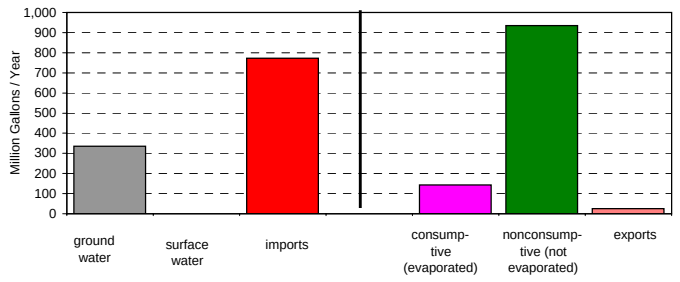


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	751	797	770	819	745	638	668	682	775	787	743
consumptive	83	89	83	93	81	73	74	77	88	90	83
domestic wells											
nonconsumptive	51	51	53	54	54	55	55	56	56	57	54
consumptive	7	7	7	8	8	8	8	8	8	8	8
industrial & commercial & mining											
nonconsumptive	96	87	91	154	143	150	134	139	162	181	134
consumptive	11	10	10	18	17	17	16	17	19	22	16
agricultural & non-agricultural irrigation											
nonconsumptive	1	1	1	1	32	1	1	1	1	1	4
consumptive	8	8	8	8	288	8	8	8	8	8	36
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	898	936	915	1,028	974	844	859	878	994	1,026	935
consumptive	109	114	109	127	393	106	106	110	123	128	143
PERCENTAGES:											
nonconsumptive	89.1%	89.1%	89.3%	89.0%	71.2%	88.8%	89.0%	88.9%	89.0%	88.9%	86.8%
consumptive	10.9%	10.9%	10.7%	11.0%	28.8%	11.2%	11.0%	11.1%	11.0%	11.1%	13.2%

Figure 3. Consumptive & Nonconsumptive Use

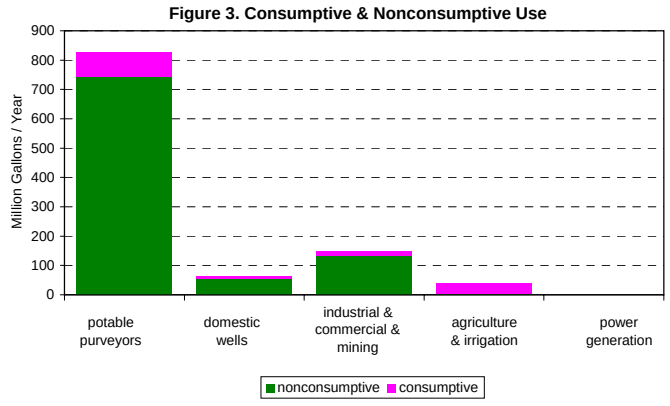


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	203	0	195	13	159	55	187	16	743	83
domestic wells	12	0	13	1	16	5	13	1	54	8
industrial & commercial & mining	27	3	33	4	37	4	36	4	134	16
agricultural & non-agricultural irrig.	0	1	1	5	3	25	1	6	4	36
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	243	4	241	22	214	89	237	27	935	143

Figure 4. Average Seasonal Consumptive Water Loss, by Use

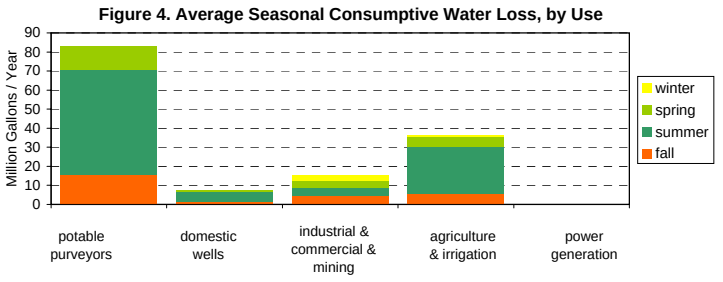


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	274	578	494	595	687	603	607	556	568	561	552
imported to HUC11	120	254	217	261	301	265	266	244	249	246	242
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0

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	395	832	711	856	988	868	874	800	818	807	795
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	395	832	711	856	988	868	874	800	818	807	795

Figure 5. Average Sewage Generation & Transfers

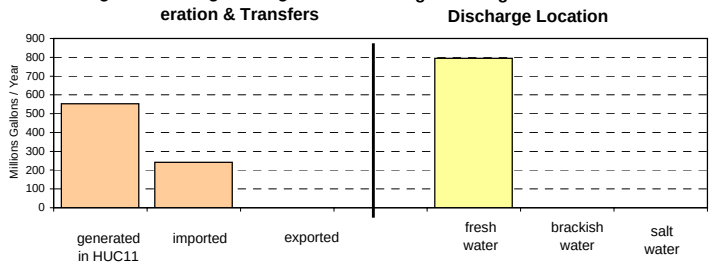


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	0
ground water	1,404
total	1,404

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	295
commercial	0
industrial	288
irrigation	0
mining	338
potable supply	483
power generation	0
total	1,404

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	19.8	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	19.8	sq. mi.
(this HUC11 onshore area:	19.5	sq. mi.)

--- Population of this HUC11:

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]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	100.0%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040105140	Pohatcong Creek
(if any)		
upstream:	--	--
(if any)	--	--
	--	--
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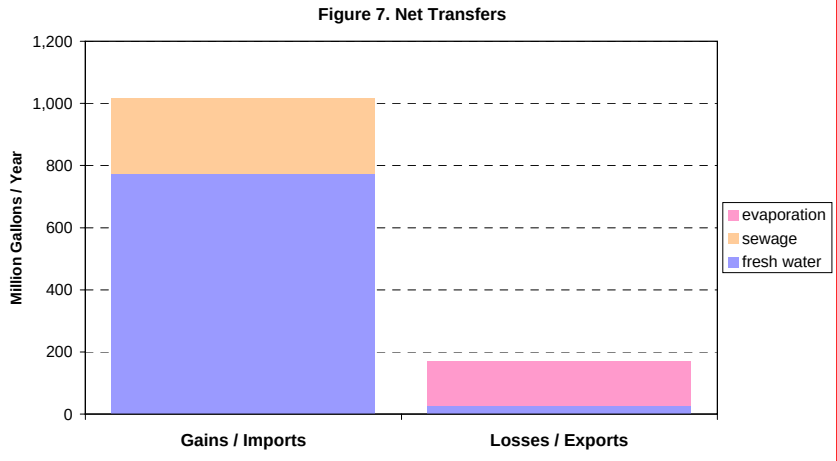
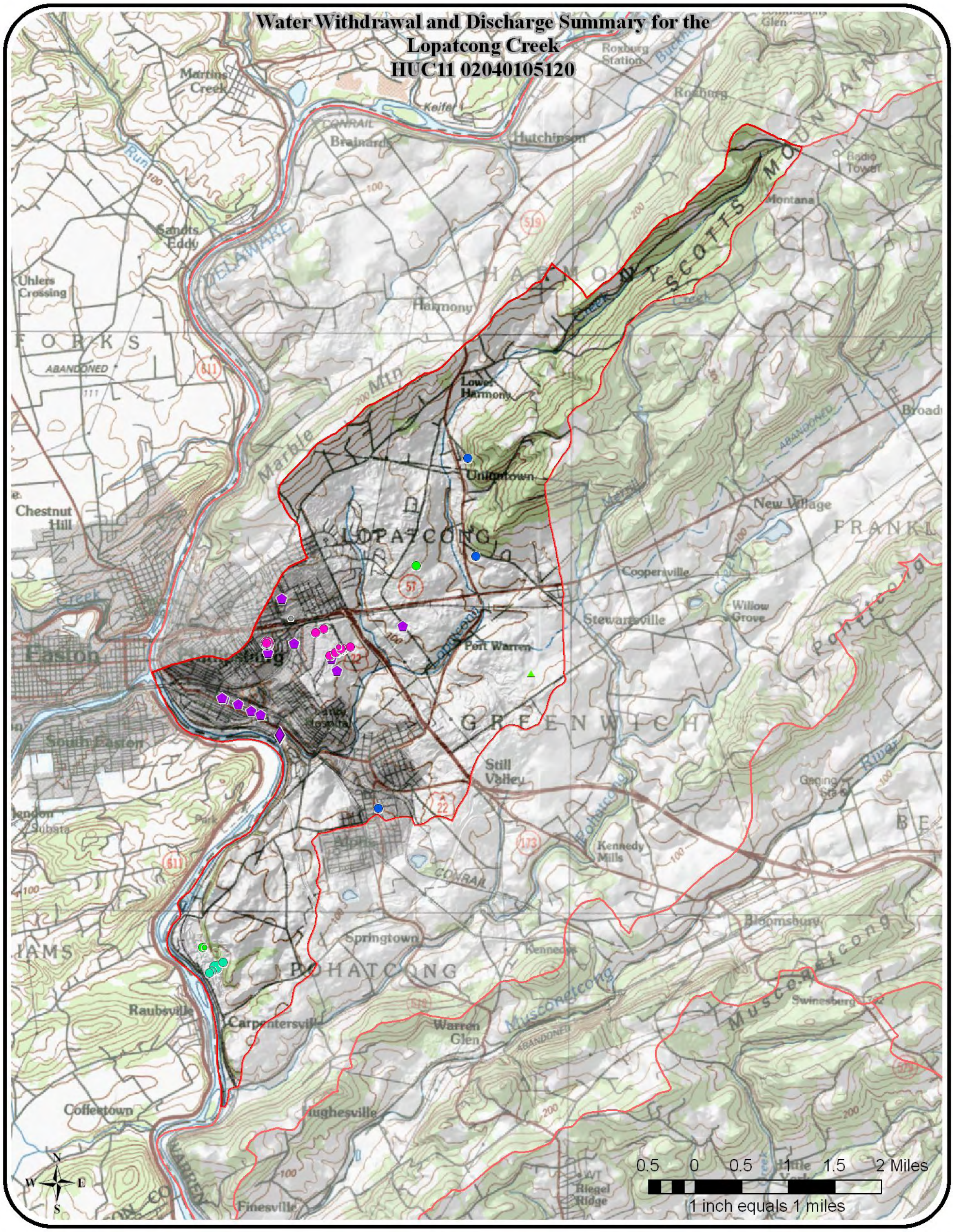
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Lopatcong Creek HUC11 02040105120



Key for Discharge Data

1999 Treated Effluent Discharge	
0 - 50	MGY
50 - 100	MGY
100 - 500	MGY
> 500	MGY
Other Permitted Discharge	

Key for Withdrawal Data

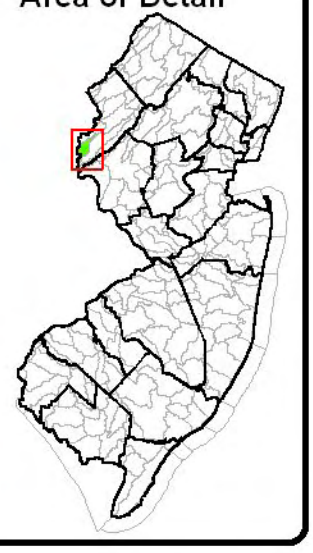
Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal	
No 1999 Use	
1 - 50	MGY
51 - 100	MGY
101 - 500	MGY
> 500	MGY

Use Group
Agricultural
Commercial
Industrial
Irrigation
Mining
Not Classified
Potable Supply
Power Generation

MGY = millions of gallons per year

Area of Detail



Water Withdrawals, Transfers and Discharges for POHATCONG CREEK --- 02040105140

WMA:	**Upper Delaware**	**01**
HUC11:	**Pohatcong Creek**	**02040105140**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	20	0	5	8	3	6	2	3	1	192	24
sum	20	0	5	8	3	6	2	3	1	192	24
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	558	588	604	608	605	630	619	559	611	883	627
sum	558	588	604	608	605	630	619	559	611	883	627
total withdrawals:	578	588	608	616	608	635	621	563	612	1,075	651

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	227	231	243	248	257	237	219	233	195	105	219
exports[11]	66	72	69	70	71	73	70	66	65	69	69
net	161	159	174	179	186	164	148	167	130	36	150

Fig 1. Average Source of Fresh Water

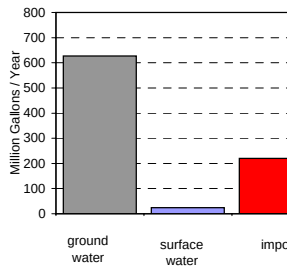


Fig 2. Average Destination of Fresh Water

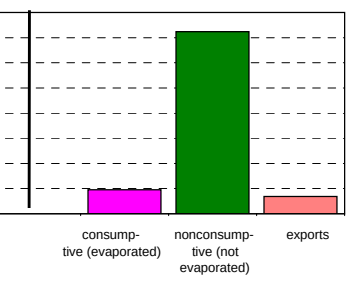


Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	381	399	393	401	399	392	375	364	367	557	403
consumptive	44	47	45	47	45	44	42	50	44	48	45
domestic wells											
nonconsumptive	162	164	169	173	177	180	181	183	185	187	176
consumptive	23	23	24	24	25	25	25	26	26	26	25
industrial & commercial & mining											
nonconsumptive	99	104	121	113	115	115	106	94	107	273	125
consumptive	11	12	13	13	13	13	12	10	11	13	12
agricultural & non-agricultural irrigation											
nonconsumptive	2	0	2	2	2	3	3	0	0	0	1
consumptive	18	0	16	22	18	27	26	3	1	1	13
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	186	19
consumptive	0	0	0	0	0	0	0	0	0	5	0
SUM:											
nonconsumptive	644	666	684	689	693	690	665	641	659	1,204	724
consumptive	95	81	98	106	101	110	105	89	83	93	96
PERCENTAGES:											
nonconsumptive	87.1%	89.1%	87.5%	86.7%	87.3%	86.3%	86.4%	87.8%	88.8%	92.8%	88.3%
consumptive	12.9%	10.9%	12.5%	13.3%	12.7%	13.7%	13.6%	12.2%	11.2%	7.2%	11.7%

Figure 3. Consumptive & Nonconsumptive Use

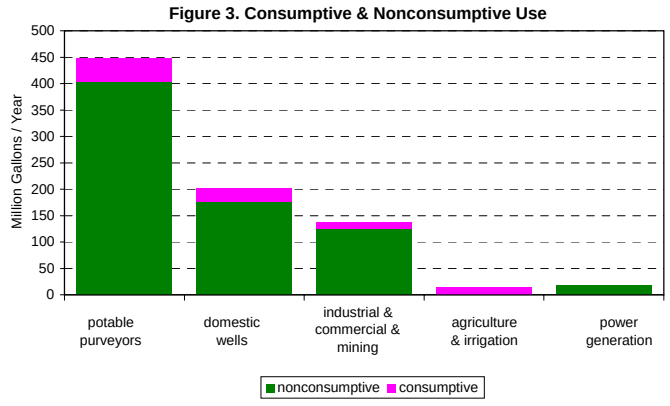


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	101	0	100	7	89	31	95	8	384	45
domestic wells	40	0	41	3	51	18	43	4	176	25
industrial & commercial & mining	30	3	34	3	35	3	26	3	125	12
agricultural & non-agricultural irrig.	0	0	0	4	1	8	0	1	1	13
power generation	9	0	0	0	0	0	10	0	19	0
SUM:	179	3	176	16	176	60	174	16	705	96

Figure 4. Average Seasonal Consumptive Water Loss, by Use

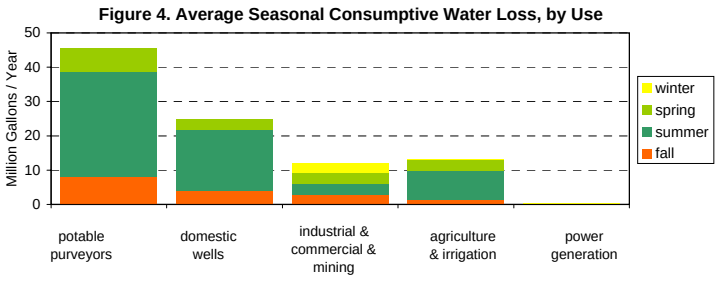


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	275	365	350	409	462	405	414	356	392	343	377
imported to HUC11	2	2	2	2	3	2	2	2	2	2	2
exported from HUC11	72	147	127	152	175	154	156	143	146	144	142

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	205	220	226	259	290	253	261	216	248	201	238
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	205	220	226	259	290	253	261	216	248	201	238

Figure 5. Average Sewage Generation & Transfers

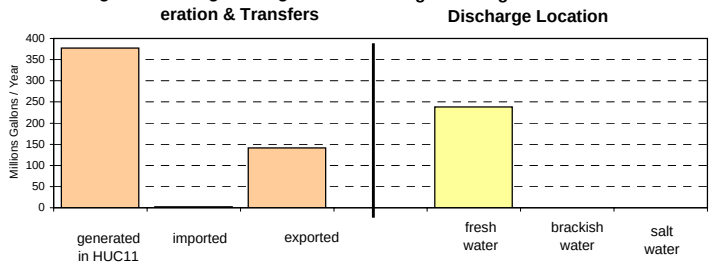


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

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

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	48
commercial	0
industrial	177
irrigation	37
mining	0
potable supply	489
power generation	26,136
total	26,887

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	58.1	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	58.1	sq. mi.
(this HUC11 onshore area:	58.0	sq. mi.)

--- Population of this HUC11:

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]

--- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	100.0%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040105150	Musconetcong River (above Trout Brook)
(if any)		
upstream:	--	--
(if any)	--	--
	--	--
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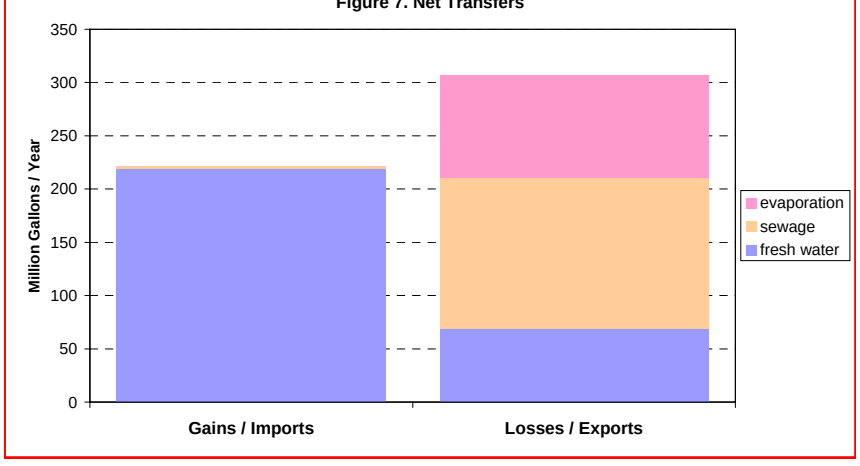
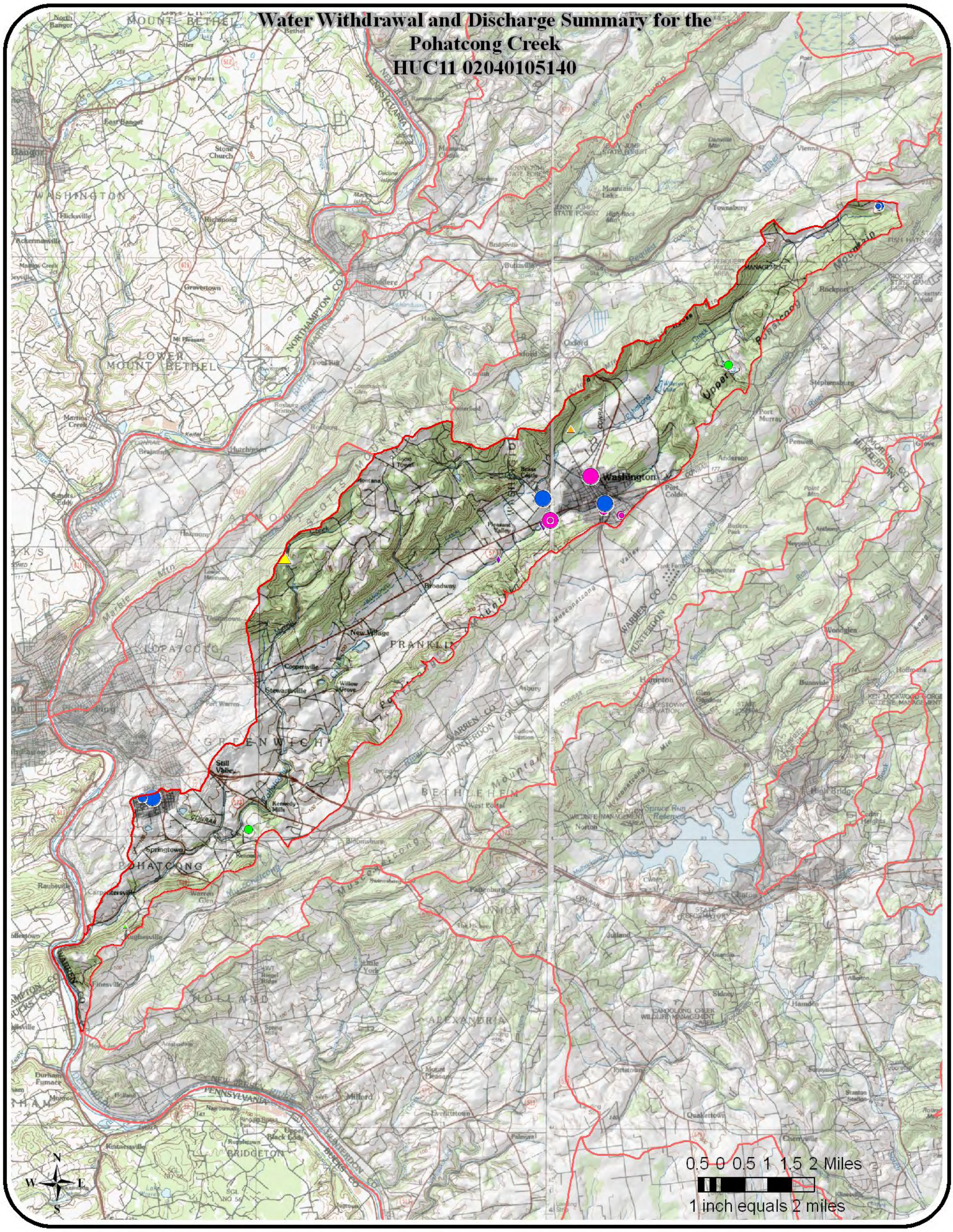
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Pohatcong Creek HUC11 02040105140



Key for Discharge Data

1999 Treated Effluent Discharge	
0 - 50	MGY
50 - 100	MGY
100 - 500	MGY
> 500	MGY
Other Permitted Discharge	

Key for Withdrawal Data

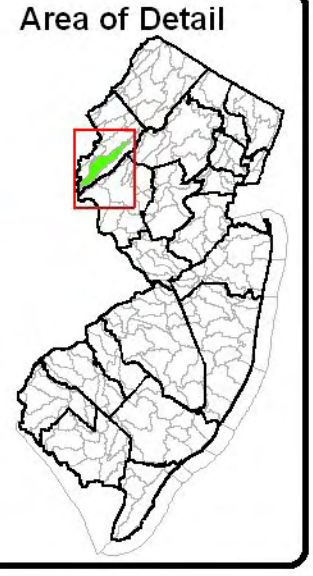
Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal		
No 1999 Use		■●▲
1 - 50	MGY	■●▲
51 - 100	MGY	■●▲
101 - 500	MGY	■●▲
> 500	MGY	■●▲

Use Group	
Agricultural	
Commercial	
Industrial	
Irrigation	
Mining	
Not Classified	
Potable Supply	
Power Generation	

MGY = millions of gallons per year

Area of Detail



Water Withdrawals, Transfers and Discharges for UPPER MUSCONETCONG RIVER --- 02040105150

WMA:	**Upper Delaware**	**01**
HUC11:	**Upper Musconetcong River**	**02040105150**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	320	209	194	200	284	226	152	218	193	198	219
sum	320	209	194	200	284	226	152	218	193	198	219
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	1,933	2,235	2,384	2,618	3,789	3,909	3,938	4,103	4,134	4,993	3,404
sum	1,933	2,235	2,384	2,618	3,789	3,909	3,938	4,103	4,134	4,993	3,404
total withdrawals:	2,253	2,444	2,579	2,818	4,073	4,135	4,090	4,321	4,328	5,191	3,623

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	476	417	395	404	434	476	488	452	558	547	465
exports[11]	111	328	316	188	409	405	303	354	323	277	301
net	365	90	78	216	25	70	185	98	234	270	163

Fig 1. Average Source of Fresh Water

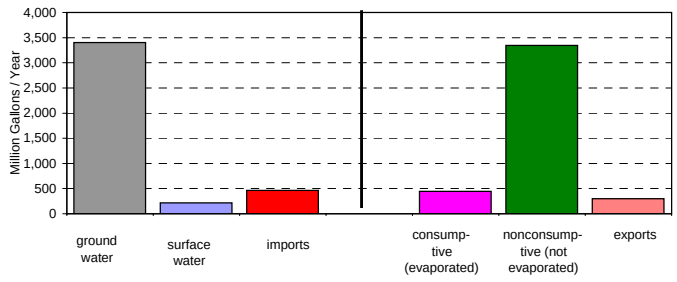


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	1,256	1,315	1,268	1,286	1,359	1,391	1,303	1,270	1,358	1,345	1,315
consumptive	140	152	142	154	156	166	146	146	163	163	153
domestic wells											
nonconsumptive	689	691	697	701	707	711	715	719	725	731	709
consumptive	97	97	98	99	100	100	101	101	102	103	100
industrial & commercial & mining											
nonconsumptive	369	245	389	691	1,550	1,602	1,755	1,905	1,929	2,736	1,317
consumptive	50	33	53	94	211	218	239	258	262	373	179
agricultural & non-agricultural irrigation											
nonconsumptive	1	0	1	1	2	2	2	2	2	1	1
consumptive	6	0	9	9	14	15	15	18	21	9	11
power generation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	2,314	2,251	2,355	2,679	3,618	3,706	3,775	3,896	4,014	4,813	3,342
consumptive	293	282	302	355	480	499	500	524	548	648	443
PERCENTAGES:											
nonconsumptive	88.8%	88.9%	88.6%	88.3%	88.3%	88.1%	88.3%	88.2%	88.0%	88.1%	88.3%
consumptive	11.2%	11.1%	11.4%	11.7%	11.7%	11.9%	11.7%	11.8%	12.0%	11.9%	11.7%

Figure 3. Consumptive & Nonconsumptive Use

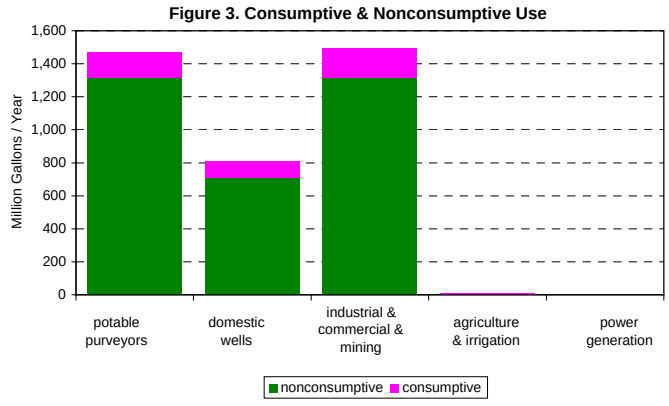


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	351	0	345	23	297	103	323	27	1,316	153
domestic wells	163	0	167	12	206	72	173	16	709	100
industrial & commercial & mining	233	32	299	41	373	51	412	56	1,317	179
agricultural & non-agricultural irrig.	0	0	0	2	1	7	0	3	1	11
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	746	32	811	78	878	232	908	102	3,343	443

Figure 4. Average Seasonal Consumptive Water Loss, by Use

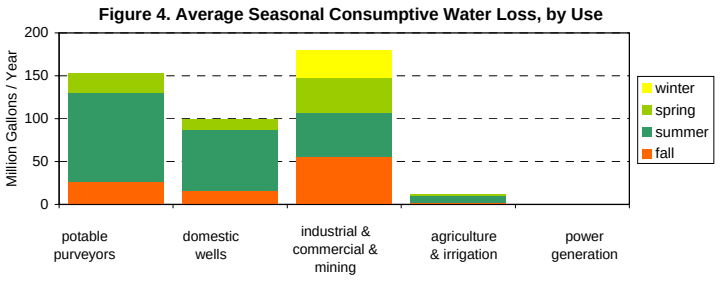


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	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
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

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
brackish water	0	0	0	0	0	0	0	0	0	0	0
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

Figure 5. Average Sewage Generation & Transfers

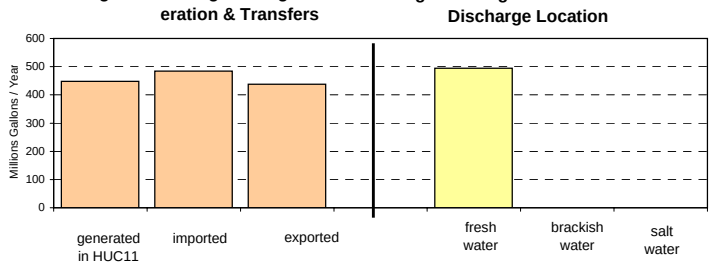


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	313
ground water	4,630
total	4,943

Table 8. 1999 Water Allocations[10] in HUC11 by Water Use Group

Use Group	MGY
agricultural	131
commercial	0
industrial	0
irrigation	37
mining	2,857
potable supply	1,918
power generation	0
total	4,943

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	81.6	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	81.6	sq. mi.
(this HUC11 onshore area:	81.6	sq. mi.)

--- Population of this HUC11:

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%	
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	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	100.0%

Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02040105160	Musconetcong River (below incl Trout Bk)
(if any)		
upstream:	--	--
(if any)	--	--
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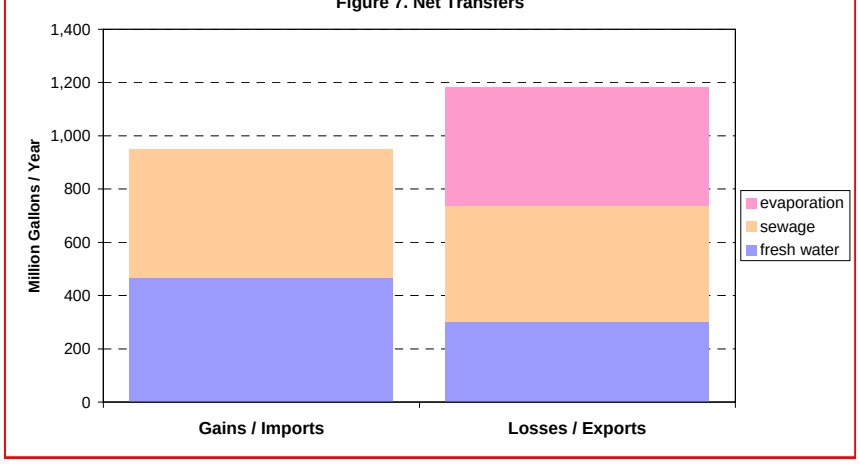
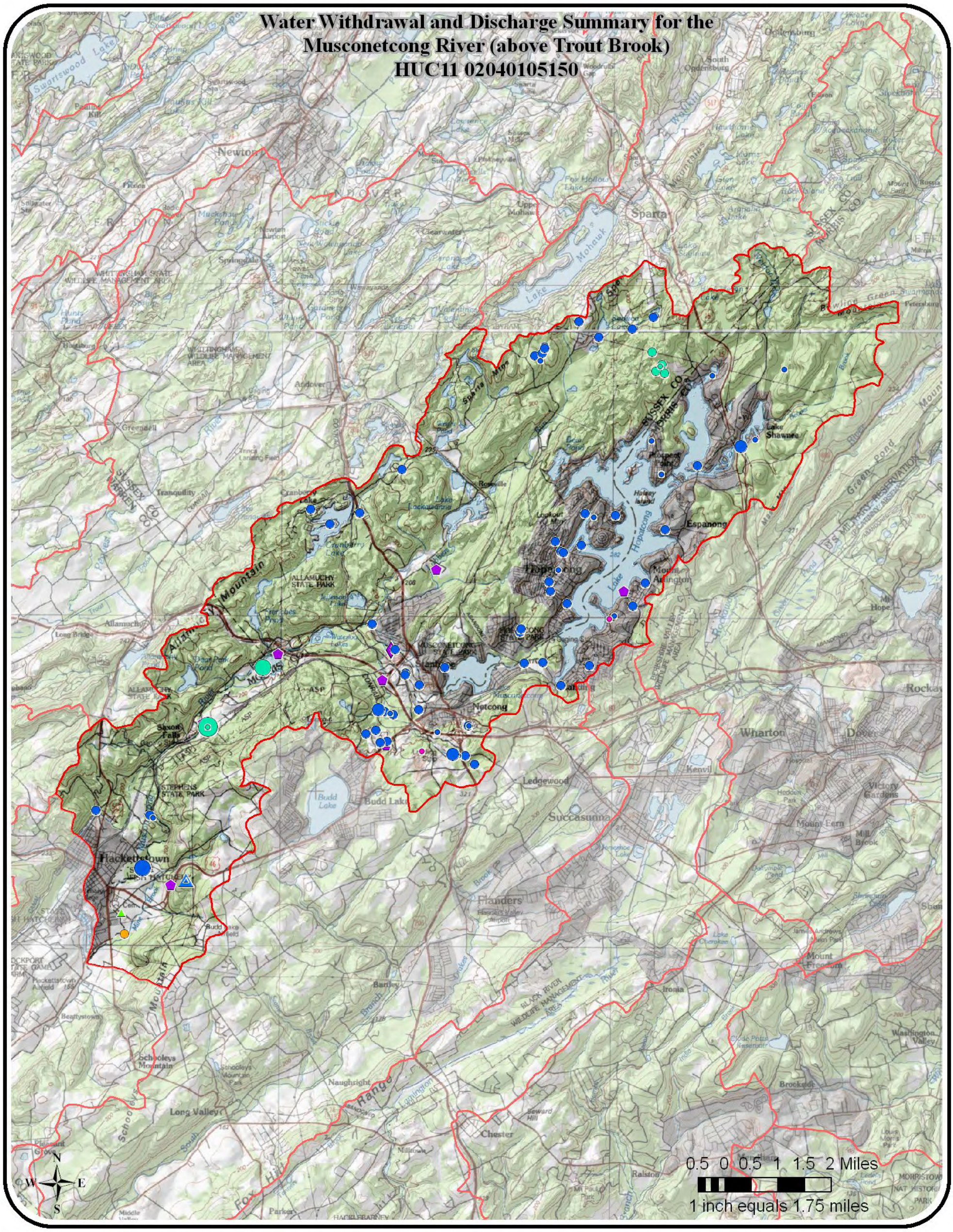
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Musconetcong River (above Trout Brook) HUC11 02040105150



Key for Discharge Data

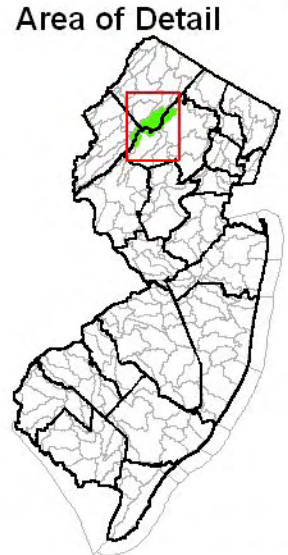
1999 Treated Effluent Discharge	
0 - 50	MGY
50 - 100	MGY
100 - 500	MGY
> 500	MGY
Other Permitted Discharge	

Key for Withdrawal Data

Source	1999 Withdrawal	Use Group
GW Confined	No 1999 Use	Agricultural
GW Unconfined	1 - 50 MGY	Commercial
SW	51 - 100 MGY	Industrial
	101 - 500 MGY	Irrigation
	> 500 MGY	Mining
		Not Classified
		Potable Supply
		Power Generation

MGY = millions of gallons per year

Area of Detail



Water Withdrawals, Transfers and Discharges for LOWER MUSCONETCONG RIVER --- 02040105160

WMA:	**Upper Delaware**	**01**
HUC11:	**Lower Musconetcong River**	**02040105160**

Table 1. Freshwater[1] Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
surface water:[2]											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	47,047	35,651	28,012	20,950	21,964	31,319	30,264	26,119	39,811	30,382	31,152
sum	47,047	35,651	28,012	20,950	21,964	31,319	30,264	26,119	39,811	30,382	31,152
ground-water:[3]											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	1,603	1,680	1,594	1,442	1,529	1,479	1,430	1,457	1,555	1,750	1,552
sum	1,603	1,680	1,594	1,442	1,529	1,479	1,430	1,457	1,555	1,750	1,552
total withdrawals:	48,649	37,331	29,607	22,392	23,493	32,798	31,695	27,576	41,366	32,132	32,704

Table 2. Freshwater Imports To & Exports From the HUC11 (millions of gallons)

imports[11]	101	85	80	89	93	96	88	98	100	97	93
exports[11]	477	558	563	568	577	558	534	527	505	410	528
net	(376)	(473)	(483)	(479)	(484)	(462)	(447)	(429)	(405)	(313)	(435)

Fig 1. Average Source of Fresh Water

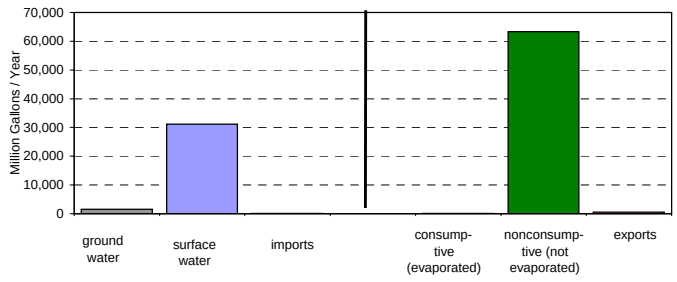


Fig 2. Average Destination of Fresh Water

Table 3. Nonconsumptive[4] & Consumptive[5] Water Use[6] in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	47,438	35,988	28,244	21,192	22,211	31,565	30,513	26,369	40,063	30,785	31,437
consumptive	40	38	27	29	29	29	27	29	31	57	33
domestic wells											
nonconsumptive	262	264	269	275	282	286	289	293	297	303	282
consumptive	37	37	38	39	40	40	41	41	42	43	40
industrial & commercial & mining											
nonconsumptive	423	454	467	316	378	350	316	349	450	529	403
consumptive	47	50	52	35	42	39	35	39	50	60	45
agricultural & non-agricultural irrigation											
nonconsumptive	3	3	3	3	3	3	3	3	3	3	3
consumptive	24	24	24	25	24	24	25	25	25	25	24
power generation											
nonconsumptive	47,047	35,651	28,012	20,946	21,959	31,317	30,263	26,119	39,811	30,367	31,149
consumptive	0	0	0	0	0	0	0	0	0	0	0
SUM:											
nonconsumptive	95,172	72,359	56,995	42,732	44,833	63,521	61,384	53,132	80,625	61,988	63,274
consumptive	148	150	141	128	135	133	127	133	147	184	143
PERCENTAGES:											
nonconsumptive	99.8%	99.8%	99.8%	99.7%	99.7%	99.8%	99.8%	99.7%	99.8%	99.7%	99.8%
consumptive	0.2%	0.2%	0.2%	0.3%	0.3%	0.2%	0.2%	0.3%	0.2%	0.3%	0.2%

Figure 3. Consumptive & Nonconsumptive Use

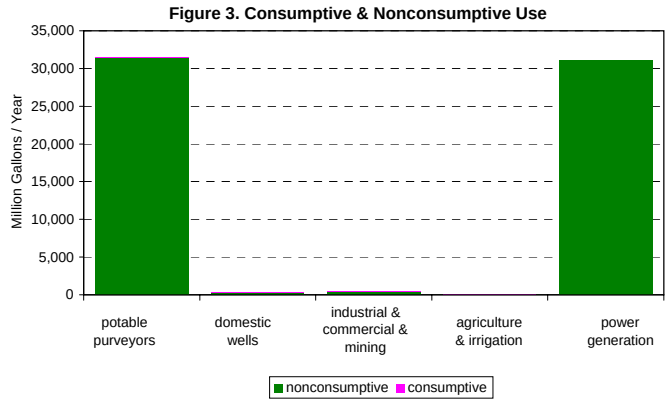


Table 4. Average Seasonal[7] Use - Nonconsumptive[4] & Consumptive[5] (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive	Noncon-sumptive	Consump-tive
potable purveyors	78	0	77	5	65	22	69	6	289	33
domestic wells	65	0	66	5	82	29	69	6	282	40
industrial & commercial & mining	98	11	100	11	102	11	103	11	403	45
agricultural & non-agricultural irrig.	0	1	0	3	2	17	0	4	3	24
power generation	8,491	0	10,037	0	6,863	0	5,759	0	31,149	0
SUM:	8,731	11	10,281	24	7,114	79	6,000	28	32,126	143

Figure 4. Average Seasonal Consumptive Water Loss, by Use

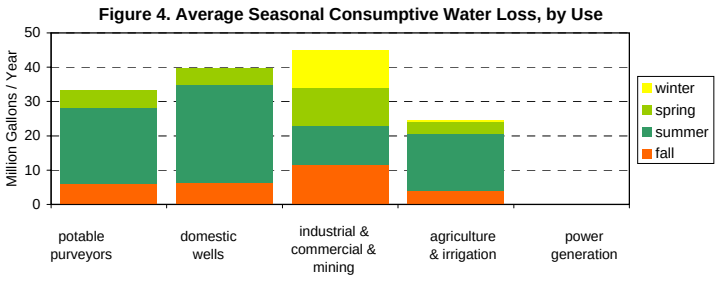


Table 5. Sewage Generation & Transfers[8] in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	226	254	256	271	341	335	374	335	330	337	306
imported to HUC11	347	362	372	391	507	498	558	489	462	475	446
exported from HUC11	16	33	30	37	44	42	49	47	56	57	41

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	558	582	598	625	805	791	882	778	735	756	711
brackish water	0	0	0	0	0	0	0	0	0	0	0
salt water	0	0	0	0	0	0	0	0	0	0	0
sum:	558	582	598	625	805	791	882	778	735	756	711

Figure 5. Average Sewage Generation & Transfers

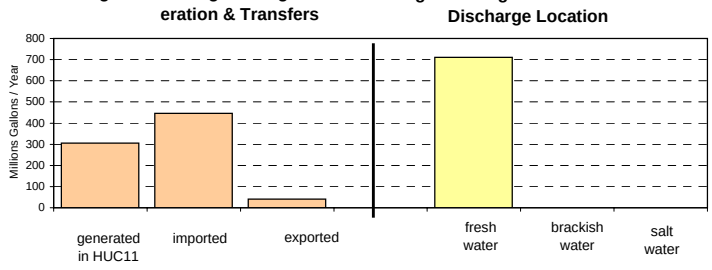


Fig 6. Average Treated-Effluent Discharge Location

Table 7. 1999 Water Allocations[10] in HUC11 by Water Source

Water Source	MGY
surface water	107,876
ground water	3,720
total	111,596

Table 8. 1999 Water Allocations[10] in HUC11 by 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
total	111,596

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	73.9	sq. mi.
upstream HUC11s	81.6	sq. mi.
total watershed	155.6	sq. mi.
(this HUC11 onshore area:	73.9	sq. mi.)

--- Population of this HUC11:

Year	Population	Change	
1940	6,643	-	
1950	7,717	16.2%	
1960	10,587	37.2%	
1970	14,933	41.1%	
1980	18,678	25.1%	
1990	20,534	9.9%	
2000	22,907	11.6%	
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:

Type	Year		Change
	1986	1995	
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 HUC11 in:

Pinelands:	0.0%
Highlands:	100.0%

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)	--	--
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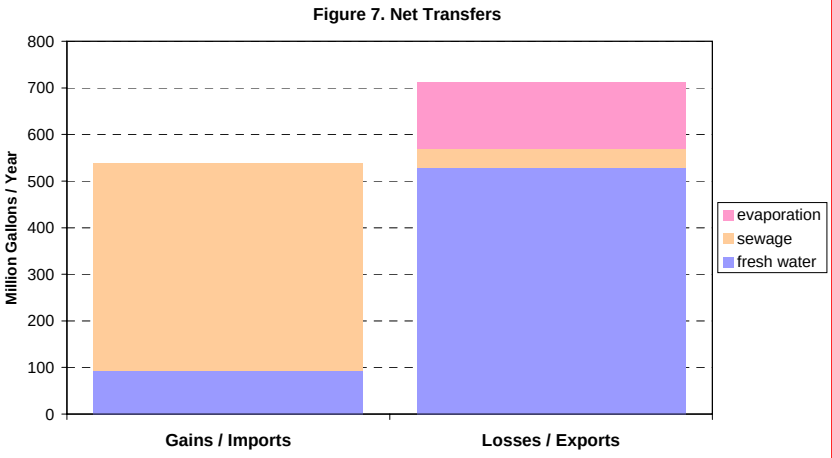
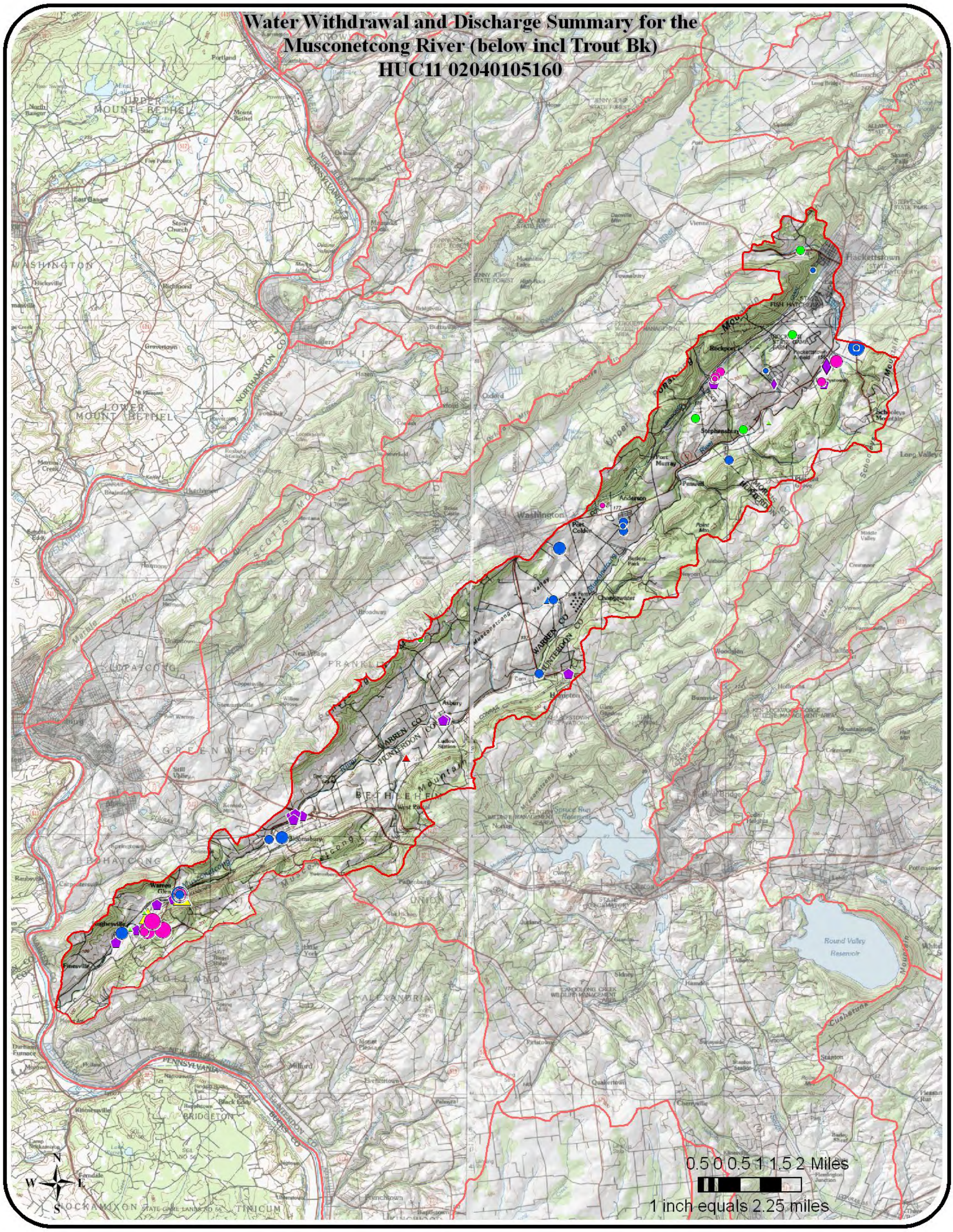
Figure 7. Net Transfers



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.

Water Withdrawal and Discharge Summary for the Musconetcong River (below incl Trout Bk) HUC11 02040105160



Key for Discharge Data

1999 Treated Effluent Discharge	
0 - 50	MGY
50 - 100	MGY
100 - 500	MGY
> 500	MGY
Other Permitted Discharge	

Key for Withdrawal Data

Source	
GW Confined	□
GW Unconfined	○
SW	△

1999 Withdrawal	
No 1999 Use	
1 - 50	MGY
51 - 100	MGY
101 - 500	MGY
> 500	MGY

Use Group	
Agricultural	
Commercial	
Industrial	
Irrigation	
Mining	
Not Classified	
Potable Supply	
Power Generation	

MGY = millions of gallons per year

Area of Detail