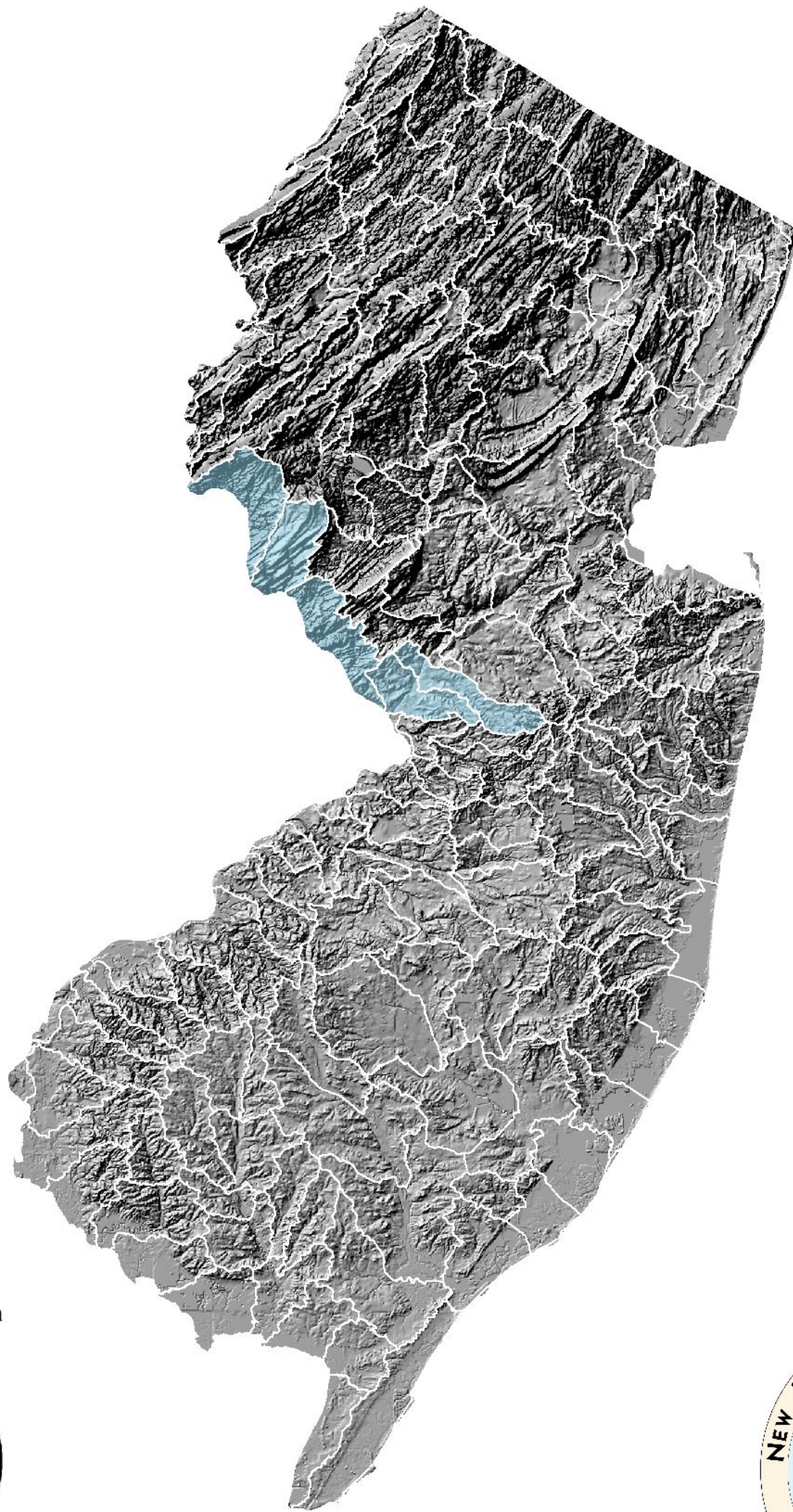


New Jersey Water Withdrawals, Uses, Transfers, and Discharges by HUC11, 1990 to 1999

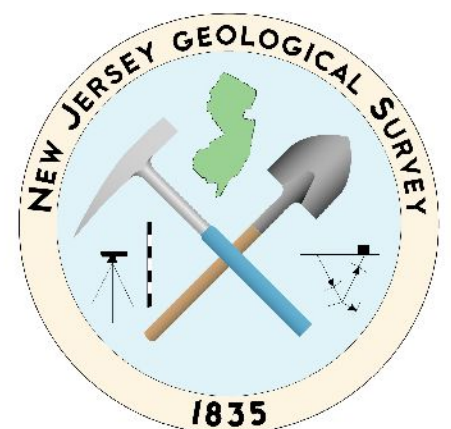
Appendix 11: HUC11 Tables, Figures and Maps WMA 11 - Central Delaware



Let's protect our earth



NEW JERSEY DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Water Withdrawals, Transfers and Discharges for HAKIHOKAKE/HARIHOKAKE/NISHISAKAWICK CK --- 02040105170

WMA:	Central Delaware	11
HUC11:	Hakihokake/Harihokake/Nishisakawick Ck	02040105170

Table 1. Freshwater¹ 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	12,032	9,739	7,309	8,496	9,735	6,995	5,473	1,924	1,316	1,394	6,441
other	0	0	1	0	0	13	0	0	0	0	1
sum	12,032	9,739	7,310	8,496	9,735	7,008	5,473	1,924	1,316	1,394	6,443
ground-water:³											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	706	784	1,020	1,178	1,184	1,096	1,138	1,096	1,093	1,058	1,035
sum	706	784	1,020	1,178	1,184	1,096	1,138	1,096	1,093	1,058	1,035
total withdrawals:	12,738	10,523	8,330	9,675	10,919	8,104	6,611	3,021	2,410	2,452	7,478

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

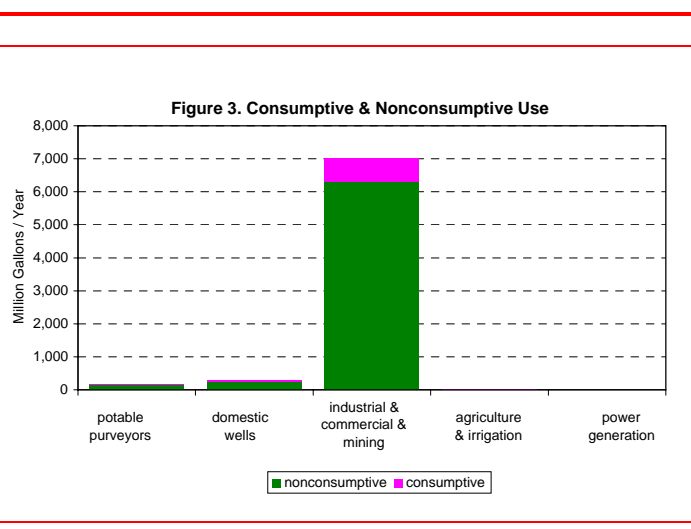
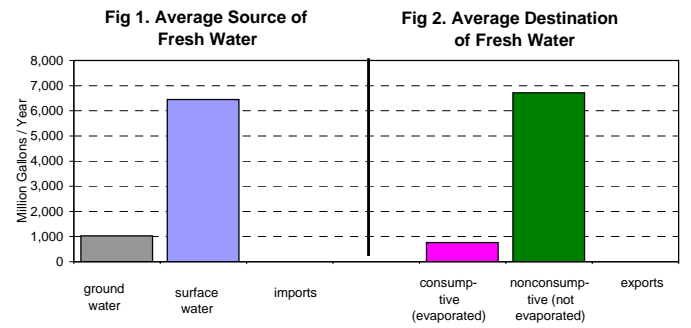


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	165	148	172	171	175	161	159	166	180	137	163
consumptive	18	17	20	20	20	18	18	21	23	18	19
domestic wells											
nonconsumptive	217	219	224	228	234	239	243	247	251	256	236
consumptive	31	31	31	32	33	34	34	35	35	36	33
industrial & commercial & mining											
nonconsumptive	11,073	9,089	7,091	8,293	9,406	6,868	5,539	2,291	1,718	1,795	6,316
consumptive	1,230	1,010	788	921	1,045	763	615	254	191	199	702
agricultural & non-agricultural irrigation											
nonconsumptive	0	1	0	1	1	2	0	1	1	1	1
consumptive	3	7	4	8	6	20	2	7	10	10	8
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	11,455	9,457	7,487	8,693	9,815	7,270	5,941	2,704	2,151	2,189	6,716
consumptive	1,283	1,065	844	982	1,104	834	669	317	259	263	762
PERCENTAGES:											
nonconsumptive	89.9%	89.9%	89.9%	89.9%	89.9%	89.7%	89.9%	89.5%	89.2%	89.3%	89.8%
consumptive	10.1%	10.1%	10.1%	10.1%	10.1%	10.3%	10.1%	10.5%	10.8%	10.7%	10.2%

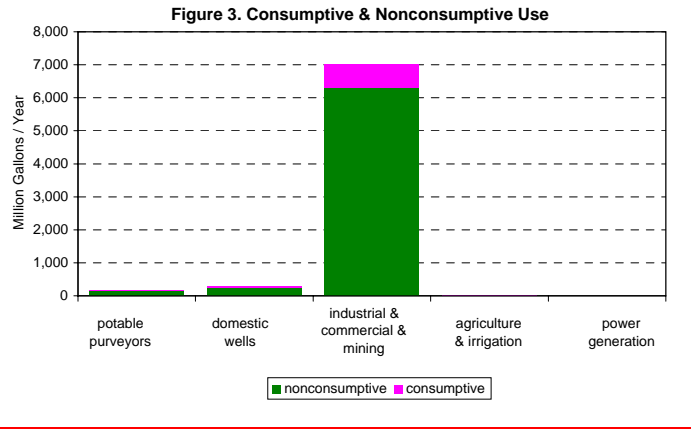


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive
potable purveyors	43	0	43	3	37	13	40	3	163	19
domestic wells	54	0	55	4	69	24	58	5	236	33
industrial & commercial & mining	1,685	187	997	111	2,707	301	927	103	6,316	702
agricultural & non-agricultural irrig.	0	0	0	1	1	5	0	2	1	8
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	1,782	187	1,096	119	2,813	342	1,025	113	6,716	762

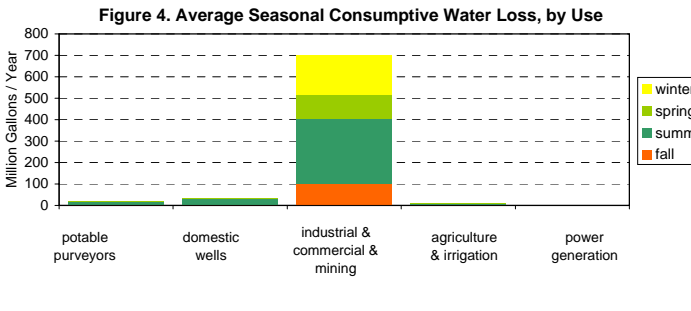


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	138	139	132	141	152	149	193	145	161	155	150
imported to HUC11	2	2	2	2	2	2	2	2	2	2	2
exported from HUC11	0	0	0	0	0	0	0	0	0	0	0

Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges⁹ in the HUC11 (millions of gallons)

destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
fresh water	139	141	133	142	153	151	195	147	162	156	152
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:	139	141	133	142	153	151	195	147	162	156	152

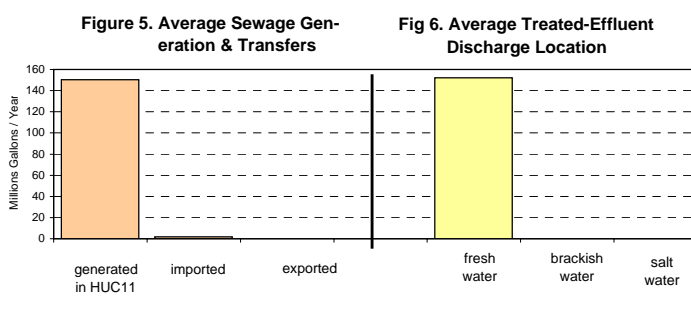


Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	23,461
ground water	24,562
total	48,023

Table 8. 1999 Water Allocations¹⁰ in HUC11 by Water Use Group

Use Group	MGY
agricultural	32
commercial	37
industrial	47,676
irrigation	37
mining	0
potable supply	241
power generation	0
total	48,023

Table 9. HUC11 Descriptive Statistics

--- **Area:**

in this HUC11 only	62.6	sq. mi.
upstream HUC11s	155.6	sq. mi.
total watershed	218.1	sq. mi.

(this HUC11 onshore area: 61.4 sq. mi.)

--- **Population of this HUC11:**

Year	Population	Change
1940	4,700	-
1950	5,187	10.4%
1960	6,700	29.2%
1970	8,440	26.0%
1980	10,298	22.0%
1990	11,348	10.2%
2000	12,593	11.0%
2010	13,628	8.2% est. ¹²
2020	14,567	6.9% est. ¹²
2030	15,676	7.6% est. ¹²

--- **Land Use of this HUC11:**

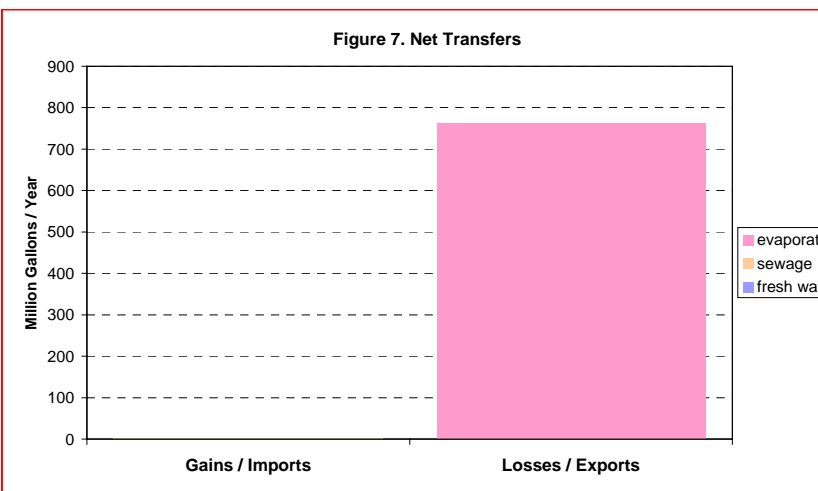
Type	Year		Change
	1986	1995	
ag.	41.2%	36.2%	-4.9%
barren	0.2%	0.1%	-0.1%
forest	35.8%	37.3%	1.5%
urban	12.5%	16.1%	3.6%
water	2.0%	2.1%	0.0%
wetlands	8.3%	8.1%	-0.2%

--- **% of this HUC11 in:**

Pinelands:	0.0%
Highlands:	70.9%

Table 10. Upstream and downstream HUC11s (in NJ)

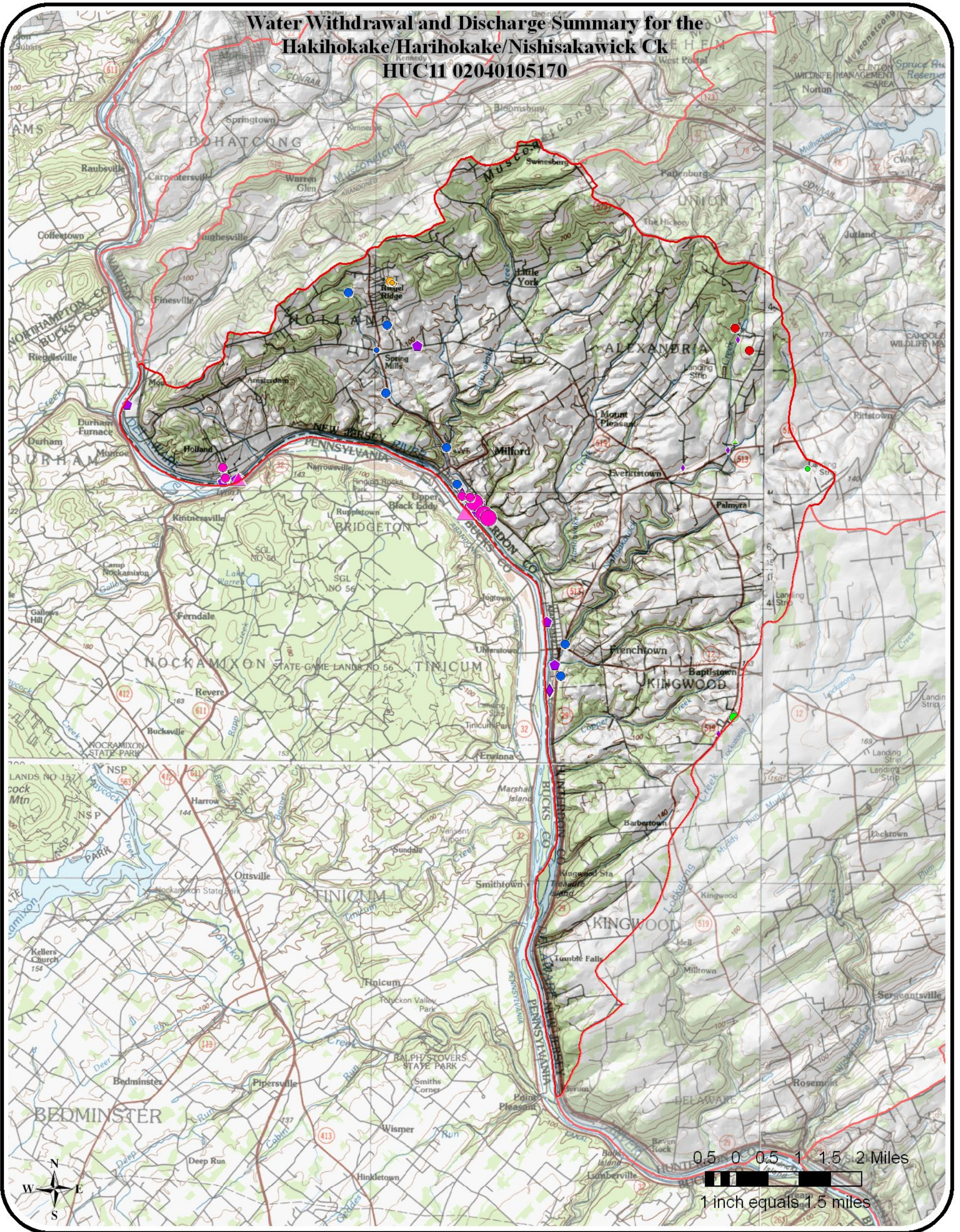
location	#	name
downstream: (if any)	02040105200	Lockatong Creek / Wickecheoke Creek
upstream: (if any)	02040105150	Musconetcong River (above Trout Brook)
	02040105160	Musconetcong River (below incl Trout Bk)
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NOTES:

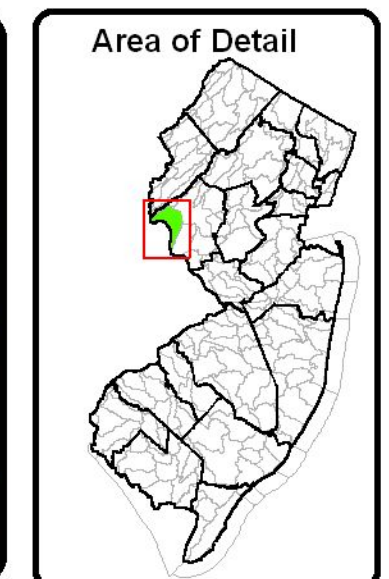
- 1 Salt and brackish water withdrawal and use is not included in this data.
- 2 This does not account for water released from onstream reservoirs for downstream intakes.
- 3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.
- 4 Nonconsumptive water use refers 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 Hakihokake/Harihokake/Nishisakawick Ck HUC11 02040105170



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
GW Confined □	No 1999 Use ■●▲
GW Unconfined ○	1 - 50 MGY ■●▲
SW △	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	●

Water Withdrawals, Transfers and Discharges for LOCKATONG CREEK / WICKECHEOKE CREEK --- 02040105200

WMA:	Central Delaware	11
HUC11:	Lockatong Creek / Wickecheoke Creek	02040105200

Table 1. Freshwater¹ 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	33,871	31,490	30,779	32,802	31,152	32,701	28,867	32,982	31,855	33,040	31,954
other	0	0	0	20	3	0	0	0	2	14	4
sum	33,871	31,490	30,779	32,823	31,155	32,701	28,867	32,982	31,857	33,054	31,958
ground-water:³											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	268	270	288	300	304	315	308	339	319	368	308
sum	268	270	288	300	304	315	308	339	319	368	308
total withdrawals:	34,139	31,760	31,067	33,122	31,459	33,017	29,175	33,321	32,175	33,422	32,266

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
imports ¹¹	22	22	21	23	26	26	25	26	26	26	24
exports ¹¹	33,879	31,499	30,798	32,821	31,173	32,719	28,882	32,995	31,870	33,058	31,969
net	(33,857)	(31,477)	(30,777)	(32,799)	(31,147)	(32,693)	(28,857)	(32,970)	(31,844)	(33,031)	(31,945)

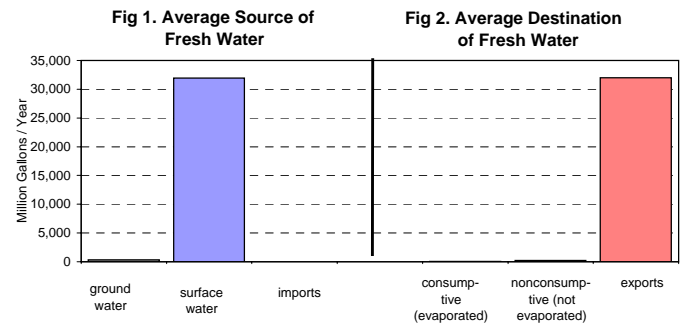


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	13	14	15	16	19	18	17	18	18	20	17
consumptive	1	2	2	2	2	2	2	2	2	2	2
domestic wells											
nonconsumptive	174	175	177	182	186	190	193	196	200	205	188
consumptive	24	25	25	26	26	27	27	28	28	29	26
industrial & commercial & mining											
nonconsumptive	27	26	27	28	27	29	26	32	36	40	30
consumptive	3	3	3	3	3	3	3	4	4	4	3
agricultural & non-agricultural irrigation											
nonconsumptive	4	4	4	7	5	5	5	7	4	10	6
consumptive	34	36	37	60	44	49	45	65	38	92	50
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	218	218	224	233	237	243	241	253	258	274	240
consumptive	63	65	66	90	76	81	77	98	73	128	82
PERCENTAGES:											
nonconsumptive	77.5%	77.0%	77.1%	72.0%	75.8%	75.0%	75.9%	72.1%	78.1%	68.2%	74.6%
consumptive	22.5%	23.0%	22.9%	28.0%	24.2%	25.0%	24.1%	27.9%	21.9%	31.8%	25.4%

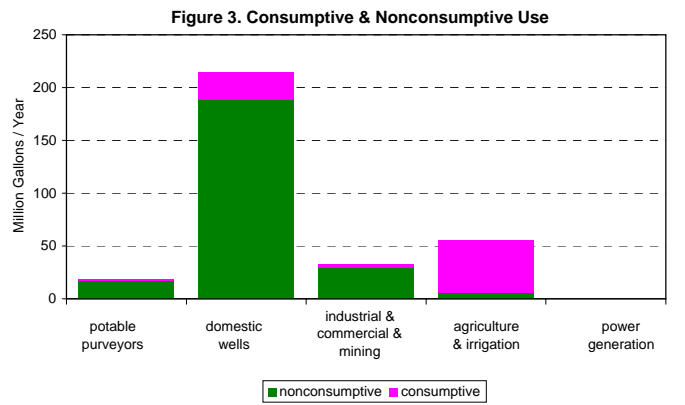


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive
potable purveyors	4	0	4	0	4	1	4	0	17	2
domestic wells	43	0	44	3	55	19	46	4	188	26
industrial & commercial & mining	7	1	8	1	7	1	7	1	30	3
agricultural & non-agricultural irrig.	0	1	1	8	4	32	1	10	6	50
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	55	2	57	12	70	53	58	15	240	82

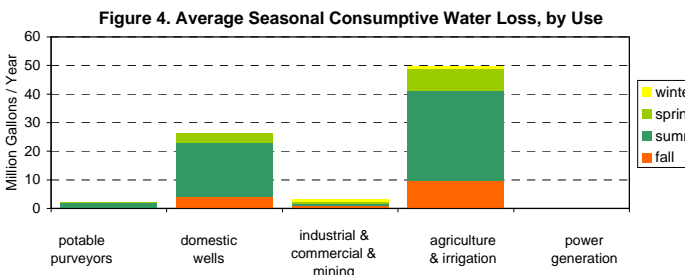


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	7	8	7	8	7	9	11	11	11	11	9
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	1	1	1	1	1	1	1	1	1	1	1

Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges⁹ in the HUC11 (millions of gallons)

destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
fresh water	6	6	5	7	6	8	10	9	10	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:	6	6	5	7	6	8	10	9	10	10	8

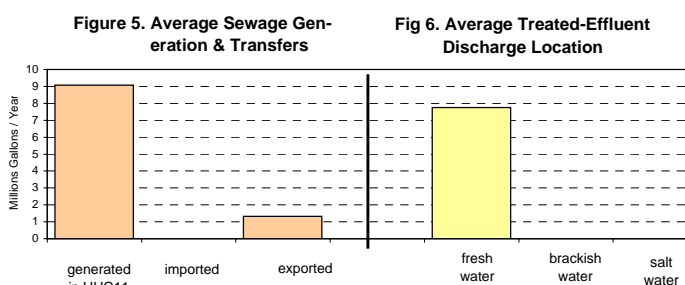


Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	82,257
ground water	335
total	82,592

Table 8. 1999 Water Allocations¹⁰ in HUC11 by Water Use Group

Use Group	MGY
agricultural	370
commercial	0
industrial	60
irrigation	0
mining	0
potable supply	82,162
power generation	0
total	82,592

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	54.4	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	54.4	sq. mi.

(this HUC11 onshore area: 54.1 sq. mi.)

--- Population of this HUC11:

Year	Population	Change
1940	2,481	-
1950	2,783	12.2%
1960	3,755	34.9%
1970	4,912	30.8%
1980	5,736	16.8%
1990	7,612	32.7%
2000	8,432	10.8%
2010	9,271	9.9% est. ¹²
2020	10,012	8.0% est. ¹²
2030	11,003	9.9% est. ¹²

--- Land Use of this HUC11:

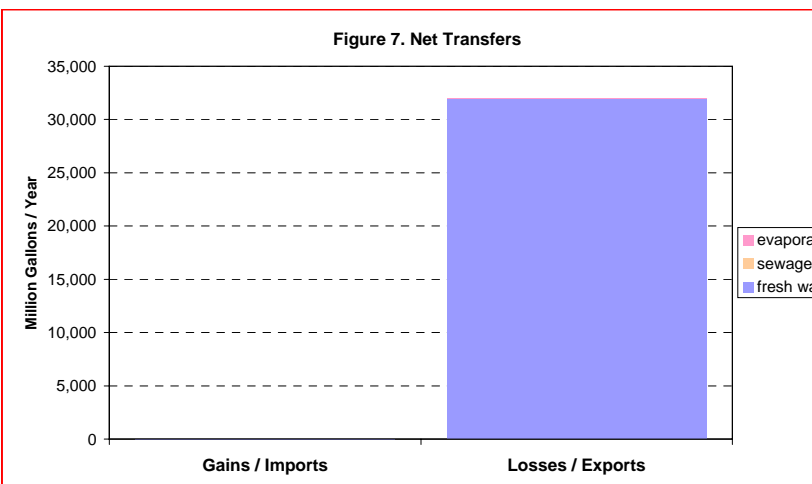
Type	Year		Change
	1986	1995	
ag.	42.0%	40.1%	-2.0%
barren	0.1%	0.1%	0.1%
forest	30.5%	30.9%	0.4%
urban	8.3%	9.9%	1.6%
water	1.0%	1.0%	0.0%
wetlands	18.1%	17.9%	-0.2%

--- % of this HUC11 in:

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

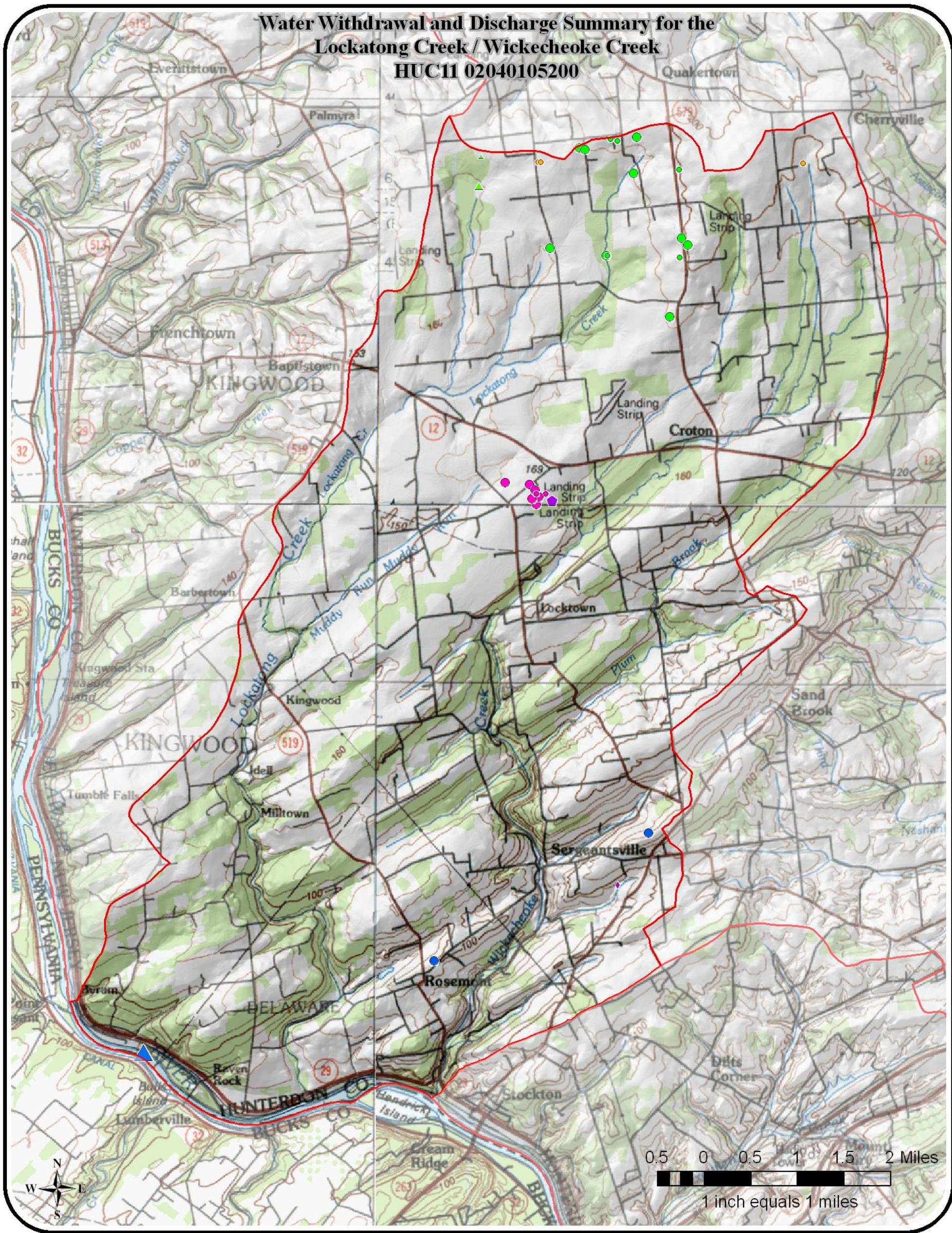
location	#	name
downstream:	02040105210	Alexauken Ck / Moore Ck / Jacobs Ck
(if any)	--	--
upstream:	--	--
(if any)	--	--



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.

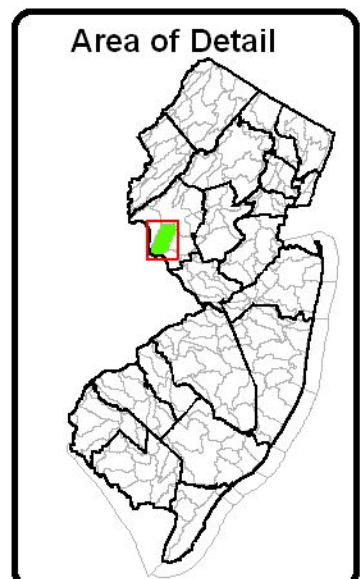
Water Withdrawal and Discharge Summary for the Lockatong Creek / Wickecheoke Creek HUC11 02040105200



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

MGY = millions of gallons per year



Water Withdrawals, Transfers and Discharges for ALEXAUKEN CK / MOORE CK / JACOBS CK --- 02040105210

WMA:	Central Delaware	11
HUC11:	Alexauken Ck / Moore Ck / Jacobs Ck	02040105210

Table 1. Freshwater¹ 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	11,276	12,585	11,103	11,837	11,762	11,627	11,138	10,271	10,095	10,139	11,183
other	105	106	106	106	117	122	143	136	106	119	116
sum	11,380	12,691	11,209	11,943	11,879	11,749	11,280	10,407	10,201	10,258	11,300
ground-water:³											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	421	483	456	496	522	544	522	536	546	533	506
sum	421	483	456	496	522	544	522	536	546	533	506
total withdrawals:	11,801	13,174	11,665	12,438	12,401	12,292	11,802	10,943	10,747	10,791	11,806

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
imports ¹¹	38	28	38	34	28	23	18	24	26	28	29
exports ¹¹	7,233	8,097	7,135	7,614	7,585	7,498	7,172	6,625	6,509	6,538	7,201
net	(7,194)	(8,069)	(7,097)	(7,580)	(7,557)	(7,474)	(7,154)	(6,602)	(6,483)	(6,509)	(7,172)

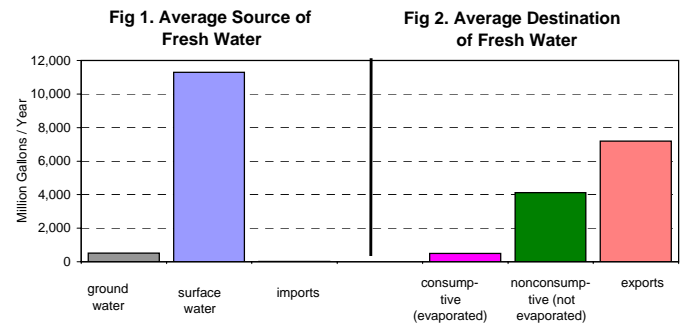


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	3,766	4,172	3,716	3,955	3,968	3,940	3,790	3,506	3,369	3,438	3,762
consumptive	434	509	440	473	456	462	437	422	469	411	451
domestic wells											
nonconsumptive	331	332	334	337	341	344	346	348	351	355	342
consumptive	47	47	47	48	48	48	49	49	49	50	48
industrial & commercial & mining											
nonconsumptive	26	41	27	37	28	22	23	12	23	25	26
consumptive	3	5	3	4	3	2	3	1	3	3	3
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	4,123	4,545	4,078	4,330	4,337	4,305	4,158	3,867	3,743	3,818	4,130
consumptive	484	560	490	524	507	513	488	472	520	464	502
PERCENTAGES:											
nonconsumptive	89.5%	89.0%	89.3%	89.2%	89.5%	89.4%	89.5%	89.1%	87.8%	89.2%	89.2%
consumptive	10.5%	11.0%	10.7%	10.8%	10.5%	10.6%	10.5%	10.9%	12.2%	10.8%	10.8%

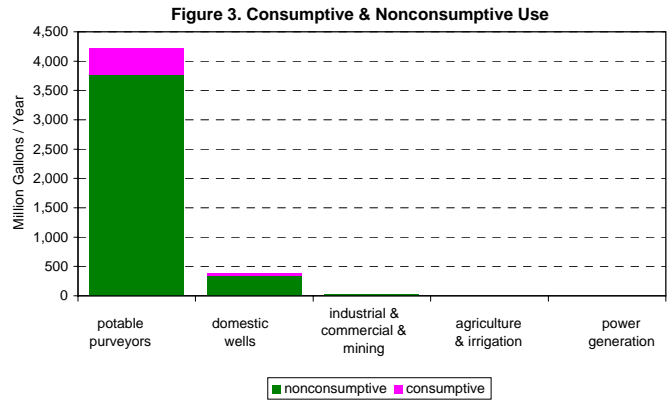


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive
potable purveyors	982	0	932	62	883	306	966	83	3,763	451
domestic wells	78	0	80	6	100	35	83	8	342	48
industrial & commercial & mining	6	1	6	1	8	1	6	1	26	3
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:	1,067	1	1,018	68	991	342	1,055	92	4,131	502

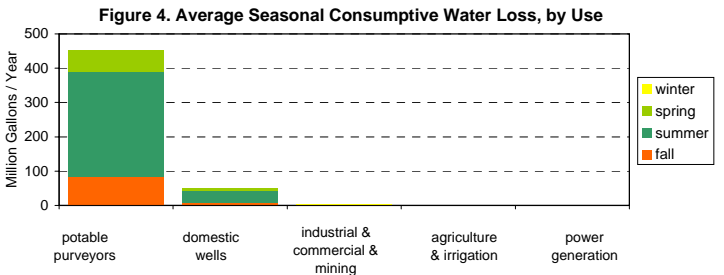


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	825	1,909	1,982	2,112	2,174	1,950	2,472	2,048	2,051	1,920	1,944
imported to HUC11	1	1	1	1	1	1	1	1	1	1	1
exported from HUC11	588	1,630	1,711	1,809	1,895	1,652	2,142	1,743	1,744	1,607	1,652

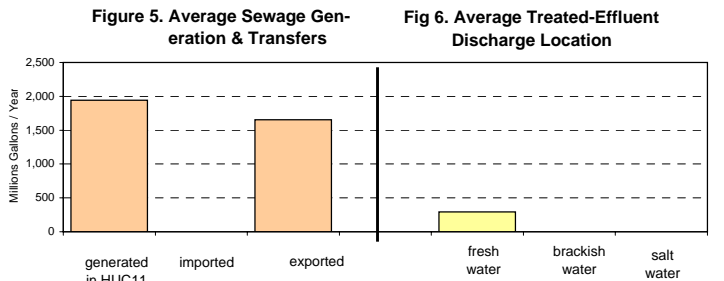


Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges⁹ in the HUC11 (millions of gallons)

destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
fresh water	238	280	272	305	281	299	331	307	308	314	294
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:	238	280	272	305	281	299	331	307	308	314	294

Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	16,512
ground water	237
total	16,749

Table 8. 1999 Water Allocations¹⁰ in HUC11 by Water Use Group

Use Group	MGY
agricultural	0
commercial	0
industrial	85
irrigation	0
mining	0
potable supply	16,663
power generation	0
total	16,749

Table 9. HUC11 Descriptive Statistics

--- **Area:**

in this HUC11 only	62.6	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	62.6	sq. mi.

(this HUC11 onshore area: 61.2 sq. mi.)

--- **Population of this HUC11:**

Year	Population	Change	
1940	45,204	-	
1950	49,969	10.5%	
1960	52,605	5.3%	
1970	54,728	4.0%	
1980	52,697	-3.7%	
1990	51,838	-1.6%	
2000	53,501	3.2%	
2010	55,804	4.3%	est. ¹²
2020	58,038	4.0%	est. ¹²
2030	60,727	4.6%	est. ¹²

--- **Land Use of this HUC11:**

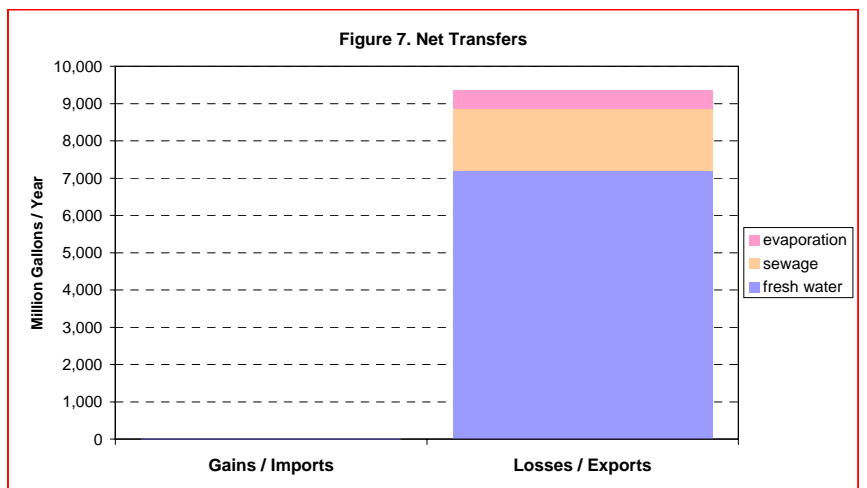
Type	Year		Change
	1986	1995	
ag.	33.9%	30.4%	-3.5%
barren	0.6%	0.6%	0.0%
forest	37.1%	38.1%	0.9%
urban	21.3%	23.8%	2.6%
water	2.9%	2.9%	0.0%
wetlands	4.2%	4.2%	0.0%

--- **% of this HUC11 in:**

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

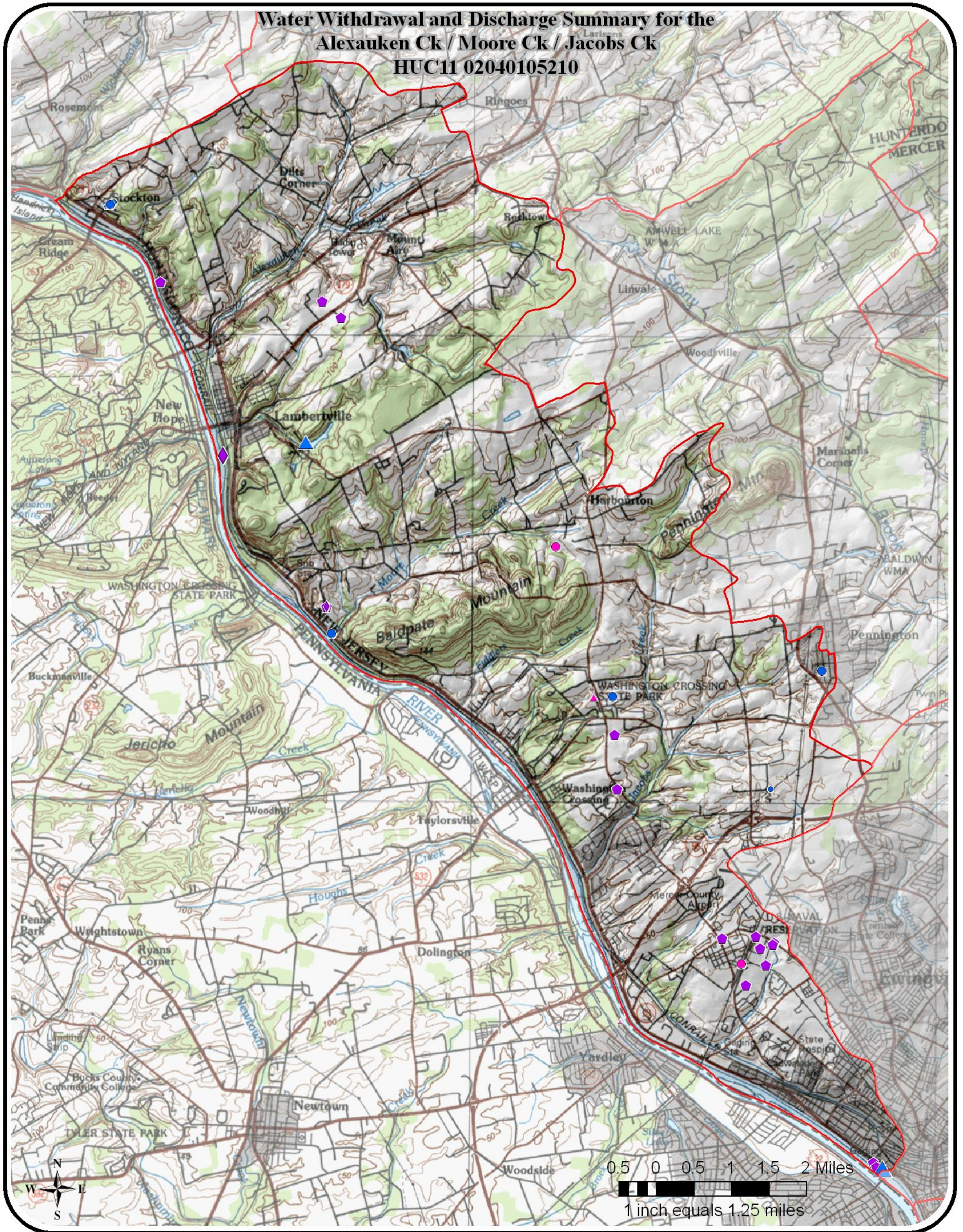
location	#	name
downstream:	02040105240	Assunpink Creek (below Shipetaukin Ck)
(if any)	--	--
upstream:	--	--
(if any)	--	--



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.

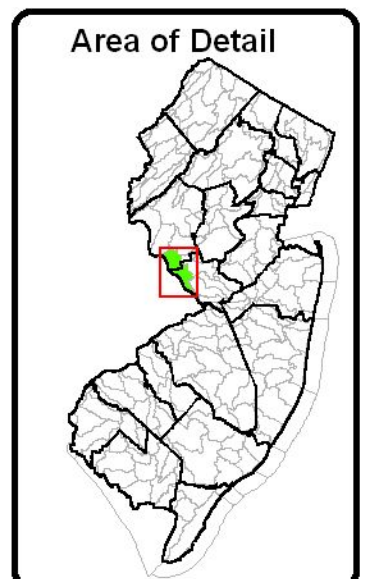
**Water Withdrawal and Discharge Summary for the
Alexauken Ck / Moore Ck / Jacobs Ck
HUC11 02040105210**



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



Water Withdrawals, Transfers and Discharges for UPPER ASSUNPINK CREEK --- 02040105230

WMA:	Central Delaware	11
HUC11:	Upper Assunpink Creek	02040105230

Table 1. Freshwater¹ Withdrawals in the HUC11 (millions of gallons)

Withdrawals (Q)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
<i>surface water:</i> ²											
Delaware River	0	0	0	0	0	0	0	0	0	0	0
other	28	37	23	47	24	52	26	97	49	57	44
sum	28	37	23	47	24	52	26	97	49	57	44
<i>ground-water:</i> ³											
confined	46	137	42	401	41	41	37	41	34	43	86
unconfined	639	649	592	239	567	665	506	530	438	503	533
sum	685	786	634	640	608	706	543	572	472	546	619
total withdrawals:	712	824	658	687	632	758	568	669	521	603	663

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
imports ¹¹	1,416	1,470	1,381	1,485	1,629	1,619	1,572	1,577	1,583	1,608	1,534
exports ¹¹	804	787	742	750	751	834	675	661	562	620	719
net	612	682	639	735	879	785	897	916	1,021	988	815

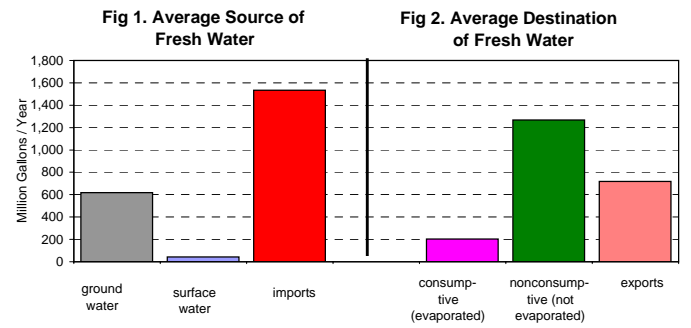


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
<i>potable purveyors</i>											
nonconsumptive	1,017	1,071	976	1,041	1,166	1,165	1,129	1,156	1,153	1,182	1,106
consumptive	114	134	111	131	137	141	131	142	148	149	134
<i>domestic wells</i>											
nonconsumptive	138	139	142	144	146	148	150	152	154	157	147
consumptive	19	20	20	20	21	21	21	21	22	22	21
<i>industrial & commercial & mining</i>											
nonconsumptive	4	20	12	15	11	10	6	11	12	13	11
consumptive	0	2	1	2	1	1	1	1	1	1	1
<i>agricultural & non-agricultural irrigation</i>											
nonconsumptive	3	5	3	7	3	6	3	10	5	6	5
consumptive	28	45	31	62	26	51	25	89	47	58	46
<i>power generation</i>											
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	1,163	1,236	1,133	1,207	1,326	1,329	1,287	1,329	1,324	1,358	1,269
consumptive	162	201	164	215	185	214	178	254	218	231	202
PERCENTAGES:											
nonconsumptive	87.8%	86.0%	87.4%	84.9%	87.8%	86.1%	87.9%	83.9%	85.9%	85.5%	86.3%
consumptive	12.2%	14.0%	12.6%	15.1%	12.2%	13.9%	12.1%	16.1%	14.1%	14.5%	13.7%

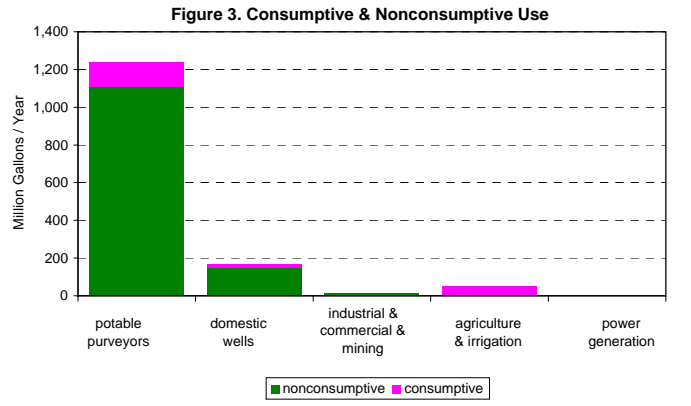


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive	Non-consumptive	Consumptive
potable purveyors	292	0	286	19	263	91	273	24	1,113	134
domestic wells	34	0	35	3	43	15	36	3	147	21
industrial & commercial & mining	2	0	2	0	5	1	2	0	11	1
agricultural & non-agricultural irrig.	0	0	1	6	3	29	1	11	5	46
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	327	0	323	28	314	136	312	38	1,276	202

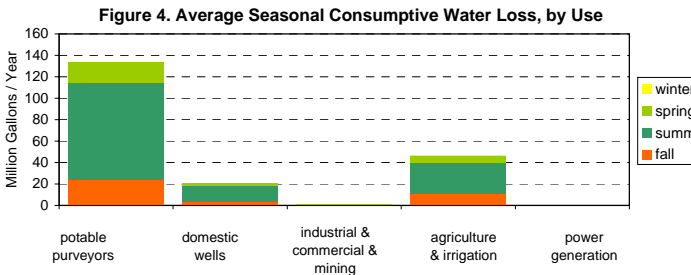


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	556	849	806	873	972	816	1,023	917	938	915	866
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	462	767	746	803	891	759	943	843	865	839	792

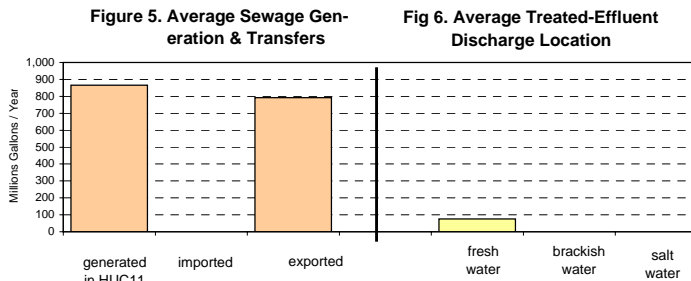


Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges⁹ in the HUC11 (millions of gallons)

destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
fresh water	95	82	60	70	81	57	81	74	73	76	75
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:	95	82	60	70	81	57	81	74	73	76	75

Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	707
ground water	892
total	1,599

Table 8. 1999 Water Allocations¹⁰ in HUC11 by Water Use Group

Use Group	MGY
agricultural	658
commercial	0
industrial	29
irrigation	127
mining	0
potable supply	785
power generation	0
total	1,599

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	47.8	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	47.8	sq. mi.

(this HUC11 onshore area: 47.8 sq. mi.)

--- Population of this HUC11:

Year	Population	Change
1940	7,614	-
1950	9,796	28.7%
1960	14,665	49.7%
1970	20,358	38.8%
1980	22,177	8.9%
1990	29,269	32.0%
2000	35,739	22.1%
2010	39,608	10.8% est. ¹²
2020	42,203	6.6% est. ¹²
2030	44,791	6.1% est. ¹²

--- Land Use of this HUC11:

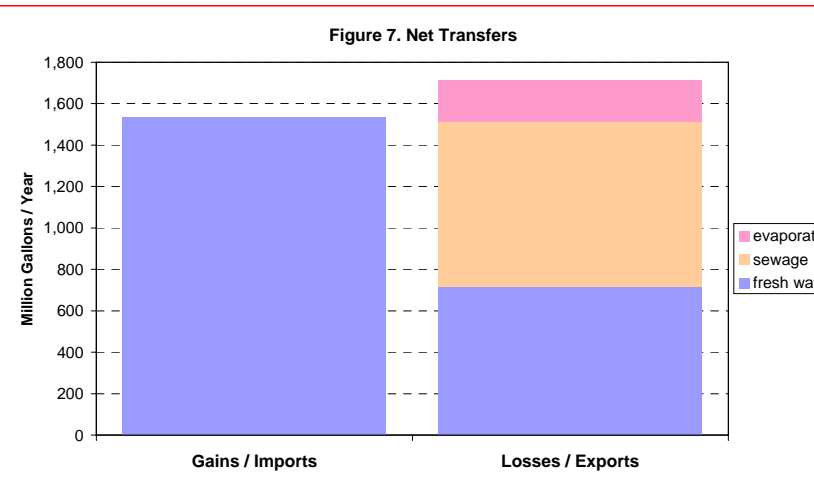
Type	Year		Change
	1986	1995	
ag.	36.2%	30.7%	-5.6%
barren	0.8%	1.0%	0.1%
forest	11.8%	12.5%	0.7%
urban	16.4%	21.8%	5.4%
water	2.7%	2.8%	0.1%
wetlands	32.1%	31.3%	-0.8%

--- % of this HUC11 in:

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

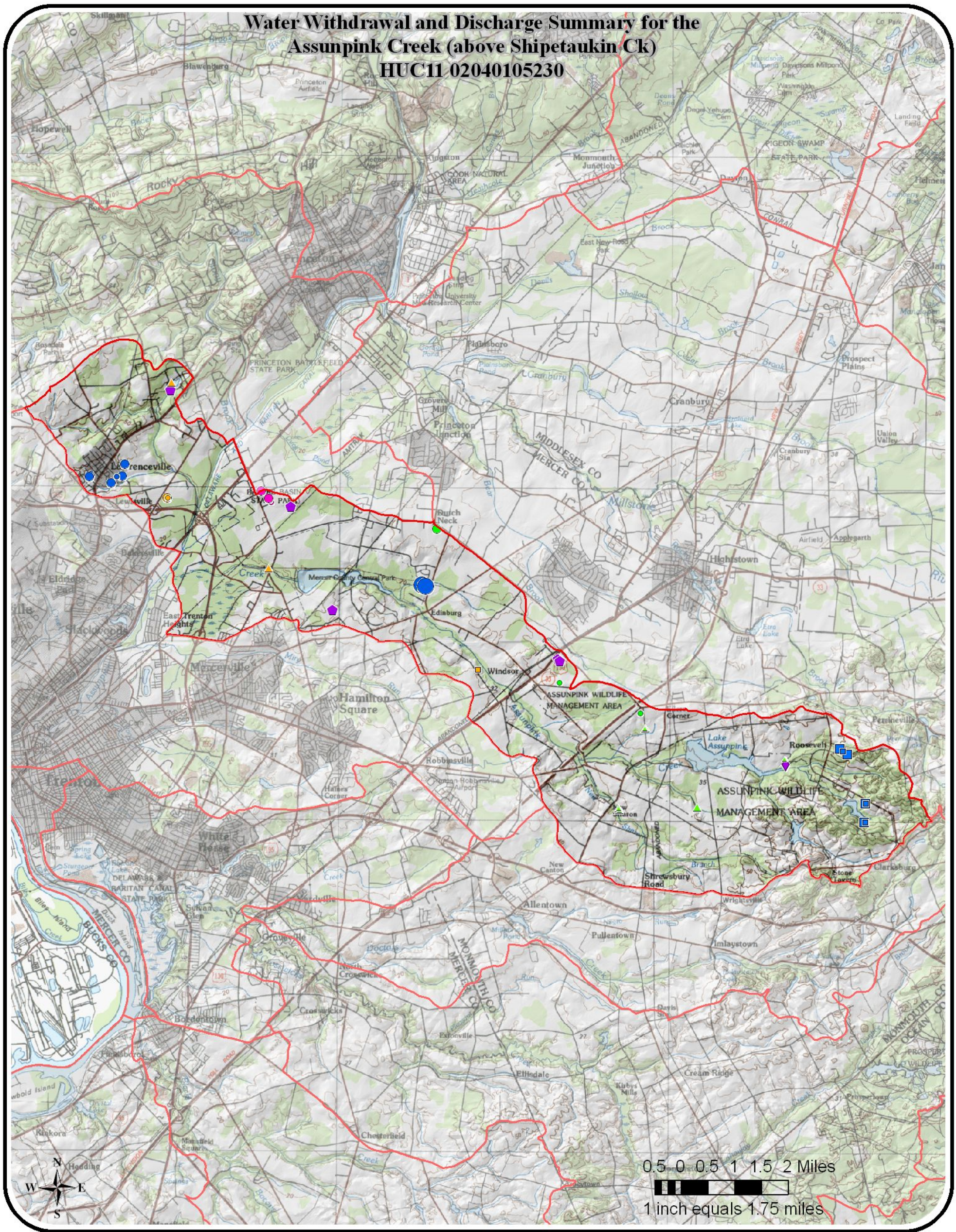
location	#	name
downstream:	02040105240	Assunpink Creek (below Shipetaukin Ck)
(if any)	--	--
upstream:	--	--
(if any)	--	--



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.

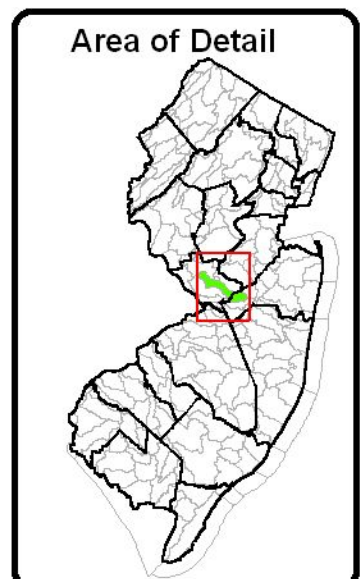
Water Withdrawal and Discharge Summary for the Assunpink Creek (above Shipetaukin Ck) HUC11 02040105230



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

MGY = millions of gallons per year



Water Withdrawals, Transfers and Discharges for LOWER ASSUNPINK CREEK --- 02040105240

WMA:	Central Delaware	11
HUC11:	Lower Assunpink Creek	02040105240

Table 1. Freshwater¹ 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	1,188	1,410	4,607	8,353	6,786	0	0	0	0	1	2,235
sum	1,188	1,410	4,607	8,353	6,786	0	0	0	0	1	2,235
ground-water:³											
confined	0	0	0	255	357	376	459	435	487	433	280
unconfined	1,154	1,320	1,260	1,139	971	1,026	815	929	931	1,037	1,058
sum	1,154	1,320	1,260	1,394	1,328	1,401	1,274	1,364	1,418	1,470	1,338
total withdrawals:	2,342	2,731	5,868	9,747	8,114	1,401	1,274	1,364	1,418	1,471	3,573

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
imports ¹¹	6,030	6,720	5,948	6,317	6,295	6,232	5,982	5,541	5,449	5,467	5,998
exports ¹¹	111	124	122	133	129	136	125	134	140	140	129
net	5,919	6,596	5,827	6,185	6,166	6,095	5,856	5,407	5,309	5,327	5,869

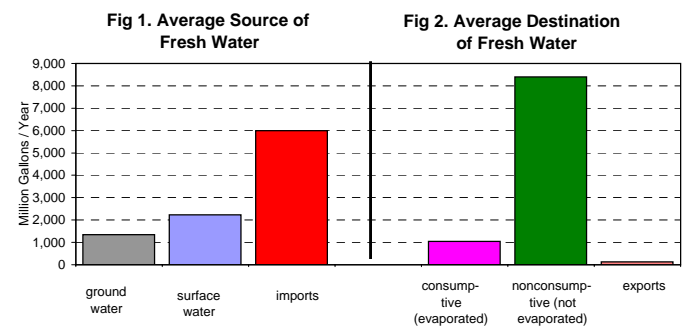


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	6,155	6,835	6,148	6,540	6,514	6,495	6,214	5,849	5,724	5,822	6,230
consumptive	715	840	733	799	764	781	721	727	810	729	762
domestic wells											
nonconsumptive	155	155	156	156	157	157	158	158	159	160	157
consumptive	22	22	22	22	22	22	22	22	22	22	22
industrial & commercial & mining											
nonconsumptive	1,069	1,269	4,143	7,514	6,103	0	0	0	0	0	2,010
consumptive	119	141	460	835	678	0	0	0	0	0	223
agricultural & non-agricultural irrigation											
nonconsumptive	3	6	3	7	4	4	2	1	1	6	4
consumptive	23	57	28	59	37	37	14	13	10	58	34
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	7,382	8,266	10,451	14,216	12,779	6,657	6,373	6,009	5,884	5,988	8,400
consumptive	879	1,060	1,244	1,715	1,501	840	757	762	842	810	1,041
PERCENTAGES:											
nonconsumptive	89.4%	88.6%	89.4%	89.2%	89.5%	88.8%	89.4%	88.7%	87.5%	88.1%	89.0%
consumptive	10.6%	11.4%	10.6%	10.8%	10.5%	11.2%	10.6%	11.3%	12.5%	11.9%	11.0%

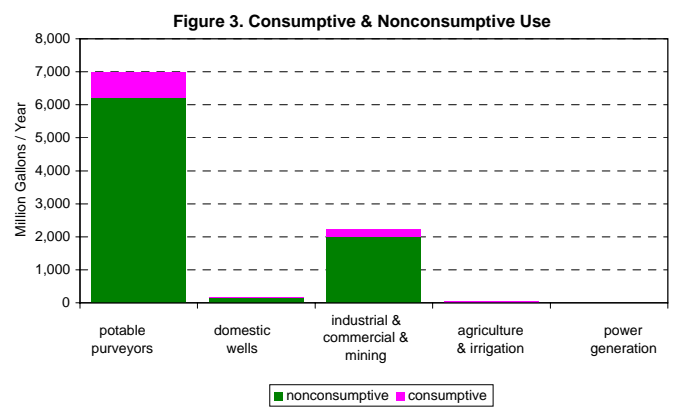


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-sumptive	Consumptive	Noncon-sumptive	Consumptive	Noncon-sumptive	Consumptive	Noncon-sumptive	Consumptive	Noncon-sumptive	Consumptive
potable purveyors	1,598	0	1,540	103	1,499	520	1,592	138	6,230	762
domestic wells	36	0	37	3	46	16	38	4	157	22
industrial & commercial & mining	482	54	467	52	490	54	571	63	2,010	223
agricultural & non-agricultural irrig.	0	0	0	3	3	23	1	7	4	34
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	2,116	54	2,045	162	2,038	614	2,202	212	8,400	1,041

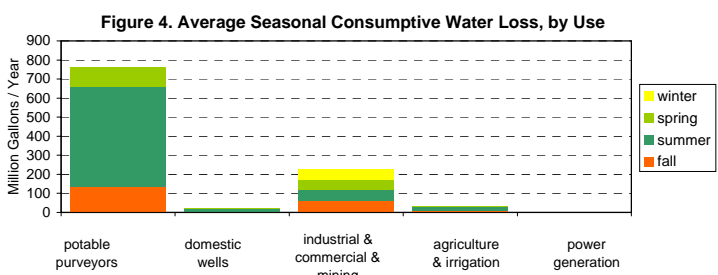


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	1,778	3,192	3,190	3,524	3,609	3,115	3,746	3,296	3,350	3,213	3,201
imported to HUC11	672	2,099	2,225	2,331	2,450	2,140	2,813	2,259	2,253	2,058	2,130
exported from HUC11	1,338	1,816	1,731	1,995	2,003	1,712	1,901	1,815	1,873	1,864	1,805

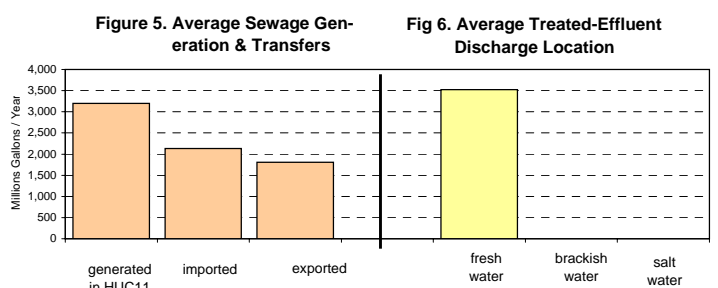


Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	120
ground water	2,158
total	2,278

Table 8. 1999 Water Allocations¹⁰ in HUC11 by Water Use Group

Use Group	MGY
agricultural	519
commercial	0
industrial	0
irrigation	74
mining	0
potable supply	1,685
power generation	0
total	2,278

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	44.6	sq. mi.
upstream HUC11s	47.8	sq. mi.
total watershed	92.3	sq. mi.

(this HUC11 onshore area: 44.5 sq. mi.)

--- Population of this HUC11:

Year	Population	Change
1940	77,838	-
1950	88,003	13.1%
1960	97,955	11.3%
1970	105,039	7.2%
1980	101,653	-3.2%
1990	104,259	2.6%
2000	106,761	2.4%
2010	111,850	4.8% est. ¹²
2020	114,900	2.7% est. ¹²
2030	117,849	2.6% est. ¹²

--- Land Use of this HUC11:

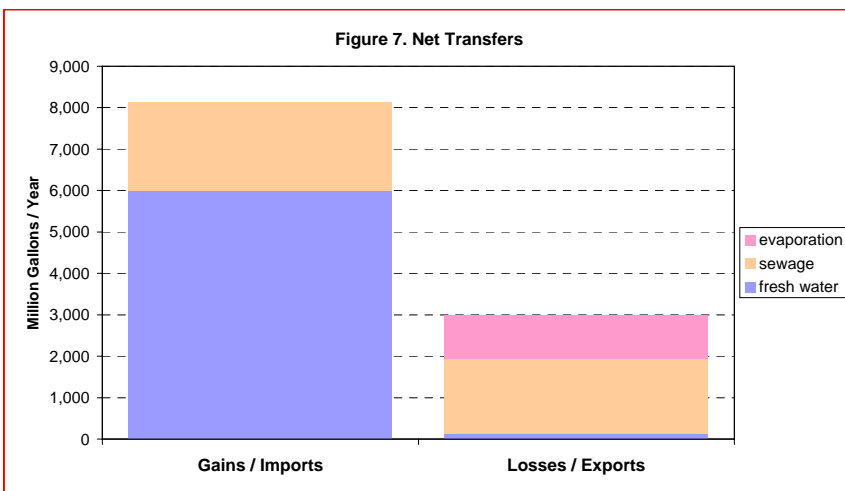
Type	Year		Change
	1986	1995	
ag.	12.0%	8.6%	-3.4%
barren	0.8%	1.6%	0.8%
forest	7.9%	7.3%	-0.6%
urban	62.3%	66.1%	3.8%
water	0.9%	1.1%	0.1%
wetlands	16.0%	15.3%	-0.7%

--- % of this HUC11 in:

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

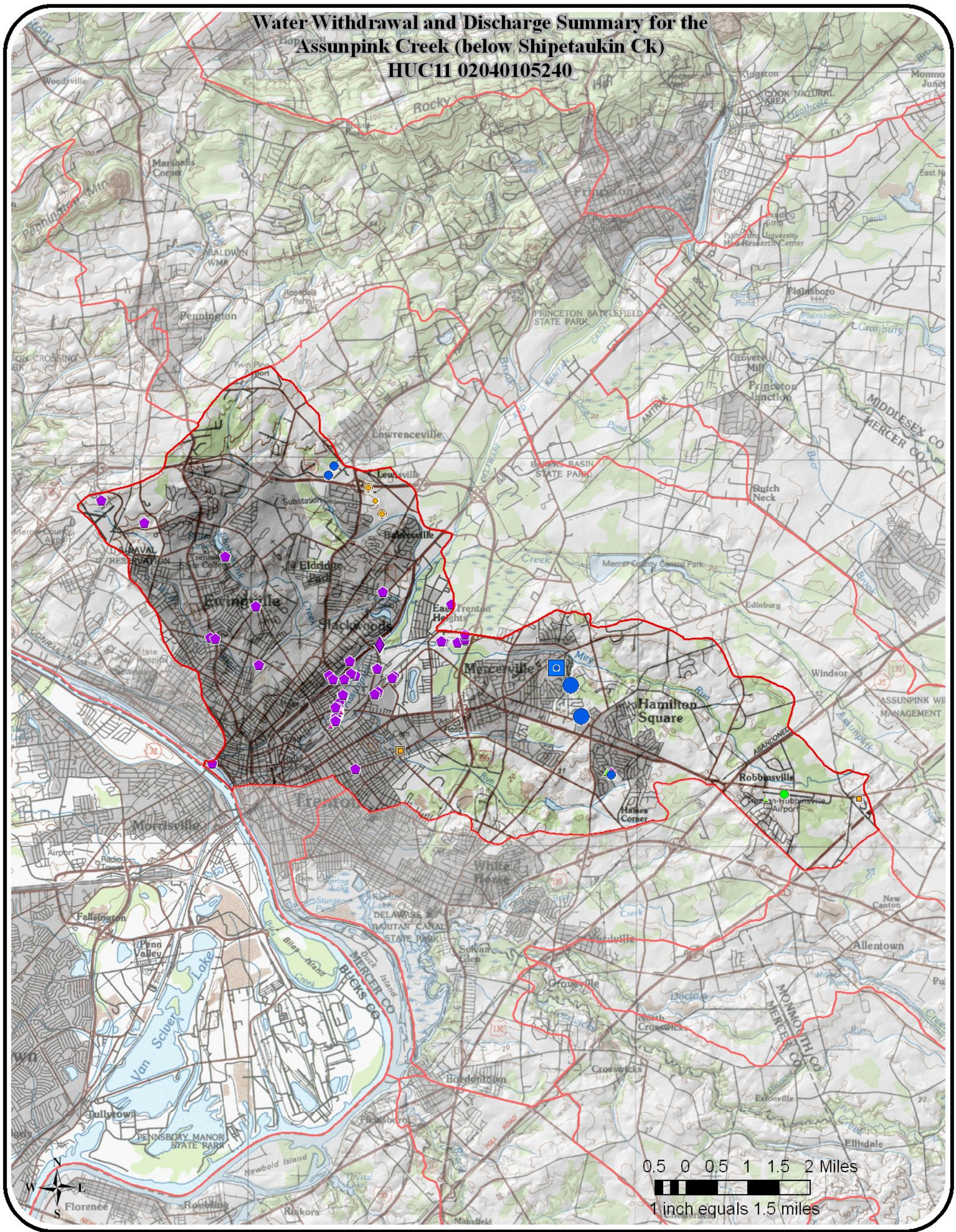
location	#	name
downstream:	02040201030	Duck Creek and UDRV to Assunpink Ck
(if any)		
upstream:	02040105230	Assunpink Creek (above Shipetaukin Ck)
(if any)		



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
Assumpink Creek (below Shipetaukin Ck)
HUC11 02040105240**



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

