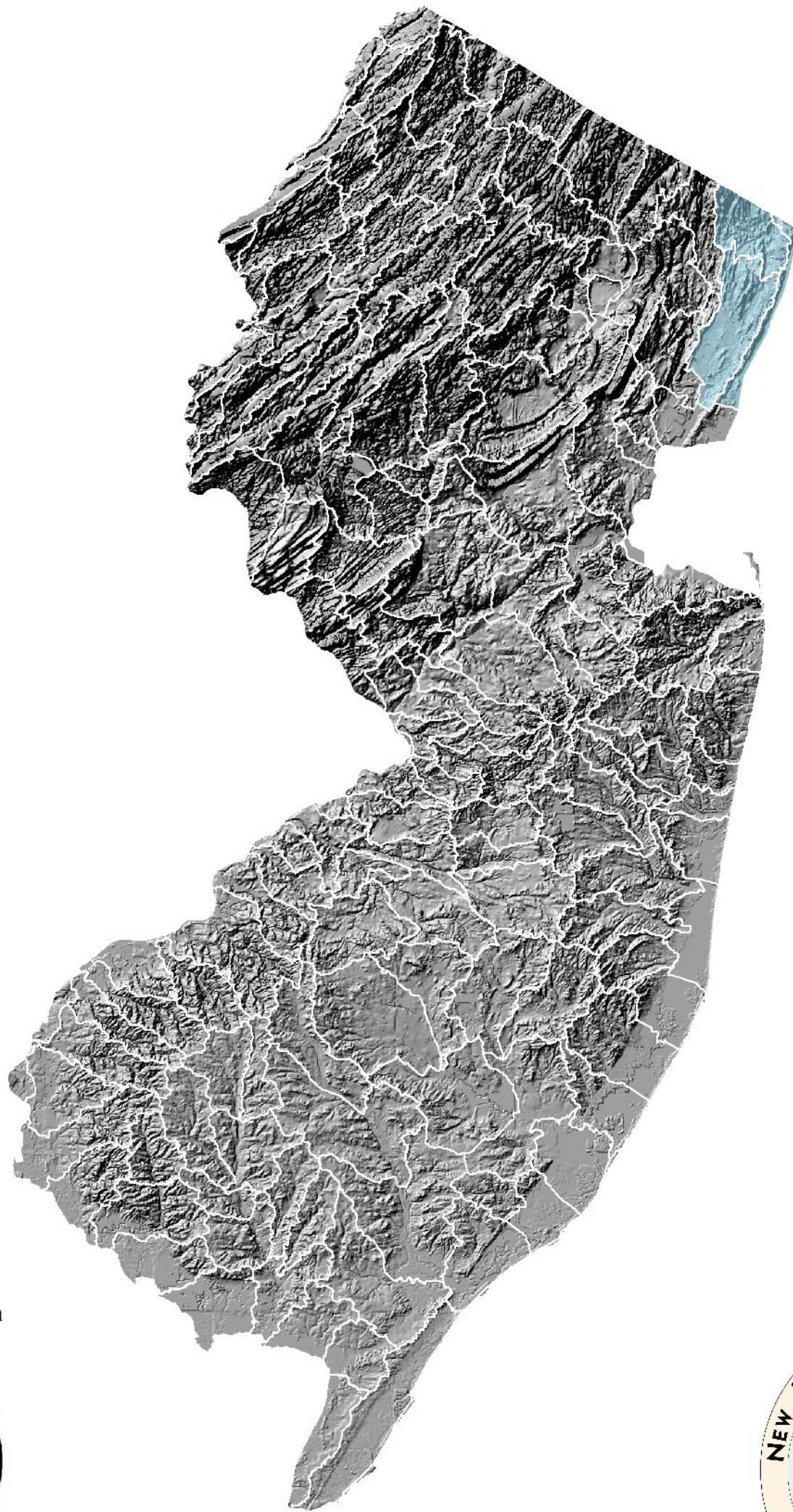


New Jersey Water Withdrawals, Uses, Transfers, and Discharges by HUC11, 1990 to 1999

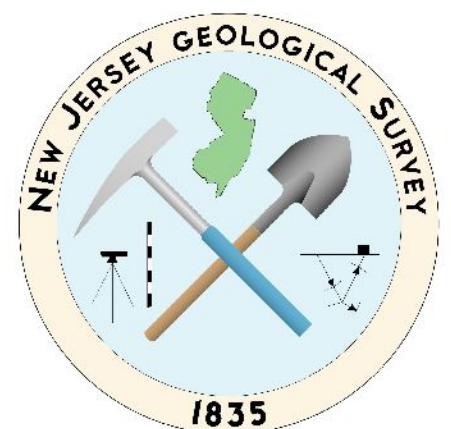
Appendix 5: HUC11 Tables, Figures and Maps WMA 5 - Hackensack, Hudson & Pascack



Let's protect our earth



NEW JERSEY DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Water Withdrawals, Transfers and Discharges for HUDSON RIVER --- 02030101170

WMA:	Hackensack and Pascack	05	
HUC11:	Hudson River	02030101170	

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	0	22	9	12	0	89	0	7	22	94	25
sum	0	22	9	12	0	89	0	7	22	94	25
<i>ground-water:</i> ³											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	10	10	7	12	8	15	7	14	11	8	10
sum	10	10	7	12	8	15	7	14	11	8	10
total withdrawals:	10	32	17	24	8	104	7	22	32	102	36

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	15,724	14,781	14,244	14,142	14,656	13,156	15,051	15,629	14,312	14,916	14,661
exports ¹¹	86	22	21	180	0	275	738	1,226	1,240	1,033	482
net	15,638	14,759	14,223	13,961	14,656	12,881	14,313	14,404	13,072	13,883	14,179

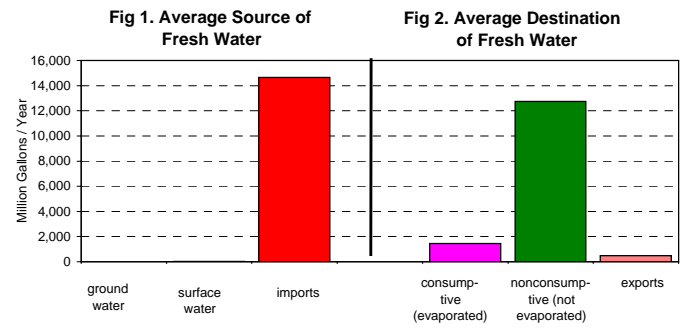


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
<i>potable purveyors</i>											
nonconsumptive	14,046	13,314	12,800	12,599	13,107	11,699	12,829	12,851	11,682	12,574	12,750
consumptive	1,591	1,466	1,433	1,374	1,549	1,271	1,485	1,553	1,399	1,398	1,452
<i>domestic wells</i>											
nonconsumptive	5	5	5	5	5	5	5	6	6	6	6
consumptive	1	1	1	1	1	1	1	1	1	1	1
<i>industrial & commercial & mining</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
<i>agricultural & non-agricultural irrigation</i>											
nonconsumptive	0	0	0	1	0	1	0	2	2	1	1
consumptive	3	3	1	5	2	8	1	14	15	6	6
<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	14,052	13,320	12,805	12,605	13,113	11,705	12,834	12,858	11,689	12,581	12,756
consumptive	1,595	1,471	1,434	1,380	1,551	1,280	1,486	1,568	1,415	1,405	1,459
PERCENTAGES:											
nonconsumptive	89.8%	90.1%	89.9%	90.1%	89.4%	90.1%	89.6%	89.1%	89.2%	90.0%	89.7%
consumptive	10.2%	9.9%	10.1%	9.9%	10.6%	9.9%	10.4%	10.9%	10.8%	10.0%	10.3%

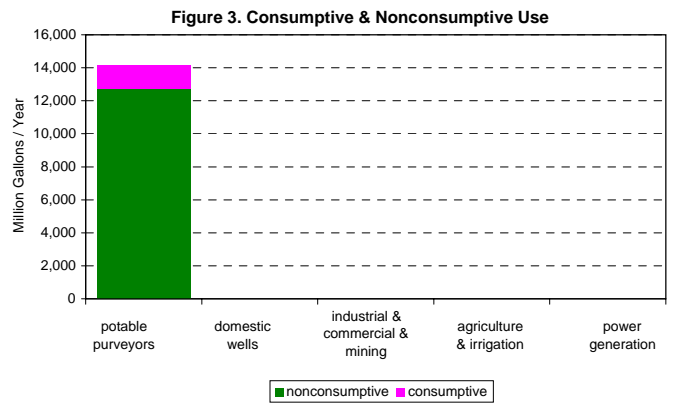


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

Use Group	Winter		Spring		Summer		Fall		Yearly Avg.	
	Noncon-	Consump-	Noncon-	Consump-	Noncon-	Consump-	Noncon-	Consump-	Noncon-	Consump-
potable purveyors	3,511	0	3,299	213	2,815	974	3,125	265	12,750	1,452
domestic wells	1	0	1	0	2	1	1	0	6	1
industrial & commercial & mining	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrig.	0	0	0	1	0	4	0	1	1	6
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	3,513	0	3,301	214	2,817	978	3,126	267	12,756	1,459

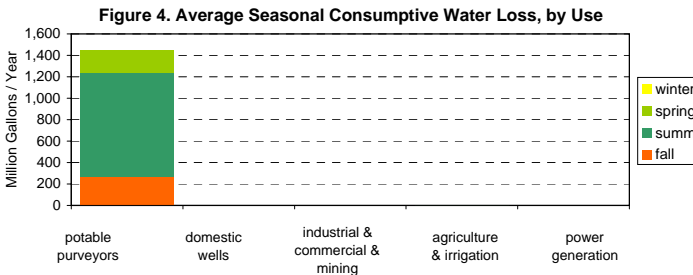


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	11,884	11,827	11,634	12,579	12,561	11,404	12,292	11,972	11,890	11,737	11,978
imported to HUC11	1,565	1,281	1,543	1,620	1,701	1,624	1,555	1,631	1,611	1,620	1,575
exported from HUC11	4,315	4,501	4,210	4,471	4,490	4,078	4,644	4,326	4,443	4,190	4,367

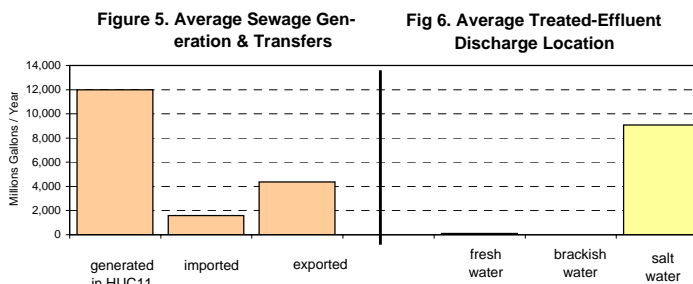


Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	454
ground water	14
total	468

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

Use Group	MGY
agricultural	0
commercial	0
industrial	0
irrigation	28
mining	0
potable supply	440
power generation	0
total	468

Table 9. HUC11 Descriptive Statistics

- Area:
 - in this HUC11 only 29.1 sq. mi.
 - upstream HUC11s 0.0 sq. mi.
 - total watershed 29.1 sq. mi.
- (this HUC11 onshore area: 19.5 sq. mi.)
- Population of this HUC11:

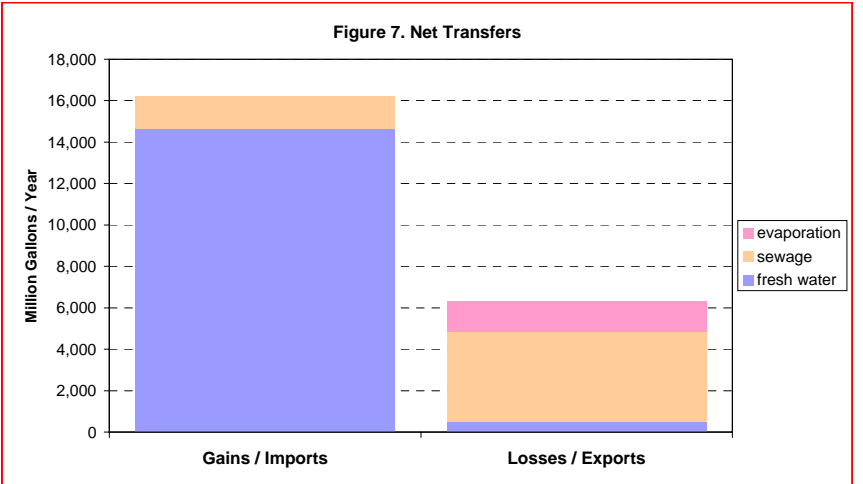
Year	Population	Change
1940	251,098	-
1950	251,547	0.2%
1960	247,778	-1.5%
1970	258,688	4.4%
1980	246,082	-4.9%
1990	238,042	-3.3%
2000	269,431	13.2%
2010	298,546	10.8% est. ¹²
2020	317,688	6.4% est. ¹²
2030	331,963	4.5% est. ¹²
- Land Use of this HUC11:

Type	Year		Change
	1986	1995	
ag.	0.1%	0.1%	0.0%
barren	1.9%	0.7%	-1.2%
forest	17.3%	17.1%	-0.2%
urban	45.9%	47.3%	1.4%
water	33.2%	33.2%	0.1%
wetlands	1.6%	1.6%	0.0%
- % of this HUC11 in:

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

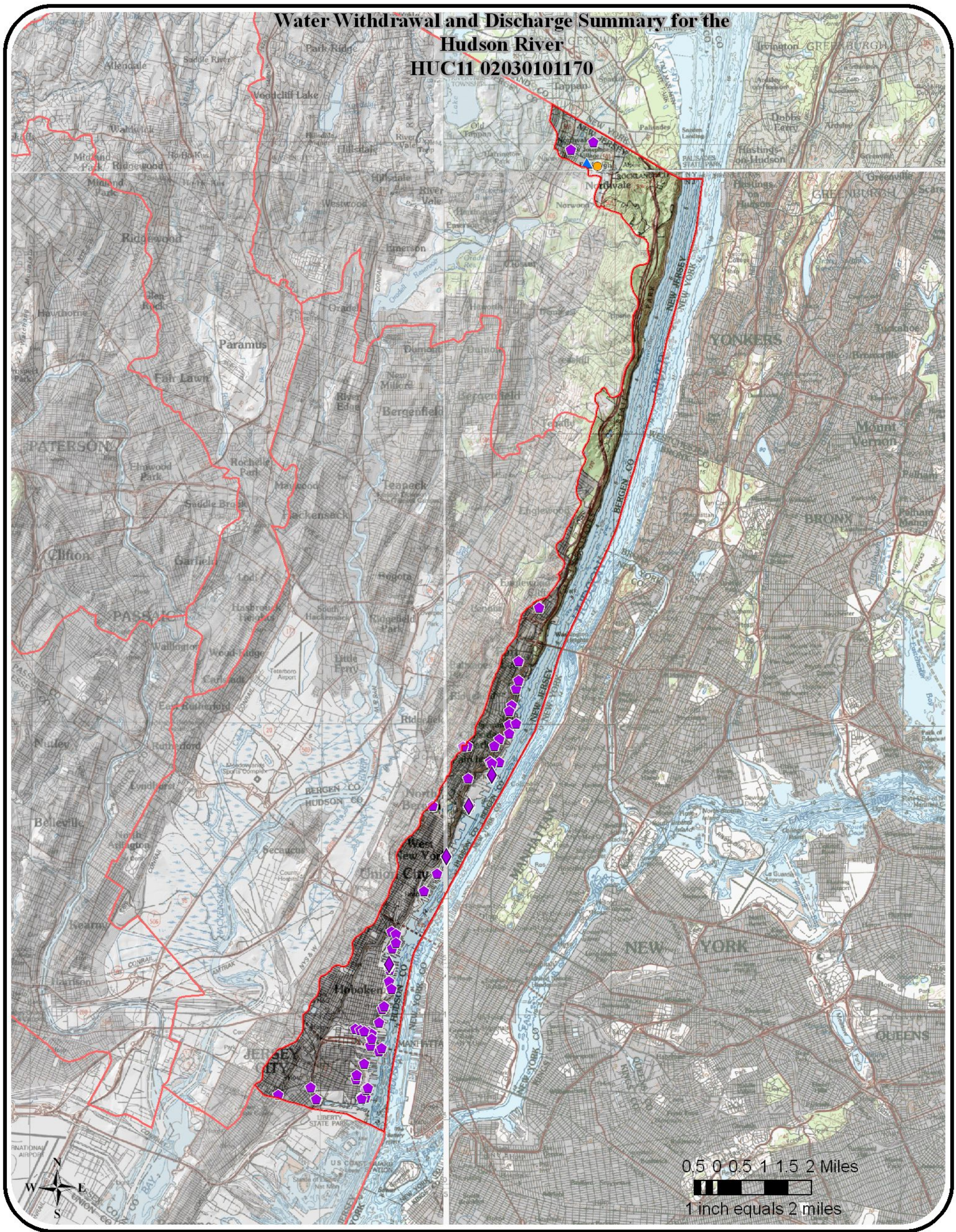
location	#	name
downstream: (if any)	#N/A	#N/A
upstream: (if any)	--	--



- 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 Hudson River

HUC11 02030101170

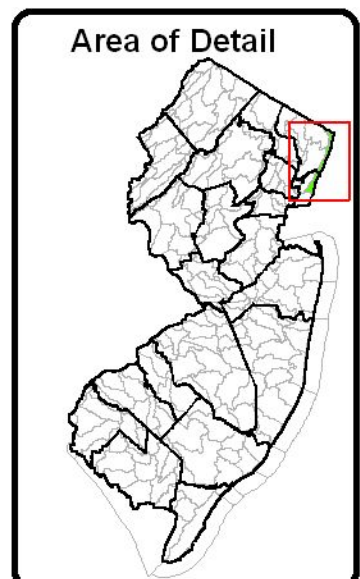


Key for Discharge Data	
1999 Treated Effluent Discharge	
0 - 50 MGY	◆
50 - 100 MGY	◆
100 - 500 MGY	◆
> 500 MGY	◆
Other Permitted Discharge	◆

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 HACKENSACK RIVER --- 02030103170

WMA:	Hackensack and Pascack	05
HUC11:	Upper Hackensack River	02030103170

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	0	0	0	0	14	19	11	4	8	25	8
sum	0	0	0	0	14	19	11	4	8	25	8
ground-water:³											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	892	966	934	1,296	1,086	1,137	940	952	1,146	1,114	1,046
sum	892	966	934	1,296	1,086	1,137	940	952	1,146	1,114	1,046
total withdrawals:	892	966	934	1,296	1,101	1,156	951	956	1,154	1,139	1,055

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	8,624	7,996	7,324	7,351	8,671	6,960	8,677	8,122	7,293	7,582	7,860
exports ¹¹	34	34	33	46	46	40	38	41	48	47	41
net	8,589	7,962	7,291	7,305	8,625	6,919	8,639	8,080	7,245	7,535	7,819

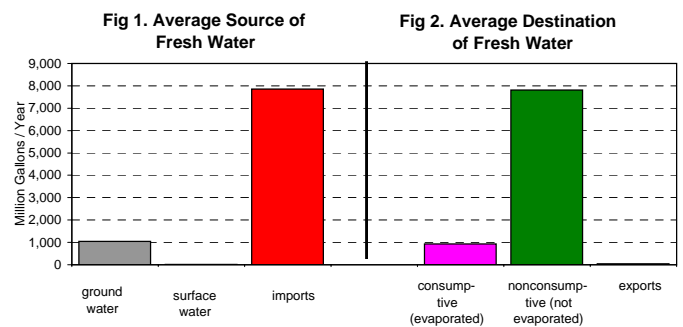


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	8,237	7,715	7,073	7,321	8,398	6,966	8,318	7,862	7,149	7,570	7,661
consumptive	954	845	798	787	1,027	660	991	936	928	792	872
domestic wells											
nonconsumptive	39	39	39	39	39	39	39	39	40	40	39
consumptive	5	5	5	5	5	6	6	6	6	6	6
industrial & commercial & mining											
nonconsumptive	140	164	148	160	126	74	68	42	52	44	102
consumptive	13	16	15	16	13	7	7	5	5	4	10
agricultural & non-agricultural irrigation											
nonconsumptive	3	4	3	4	5	7	6	6	6	5	5
consumptive	27	33	27	32	45	66	57	52	56	41	44
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	8,419	7,922	7,263	7,524	8,568	7,087	8,432	7,949	7,246	7,659	7,807
consumptive	999	900	845	841	1,090	739	1,060	998	995	843	931
PERCENTAGES:											
nonconsumptive	89.4%	89.8%	89.6%	89.9%	88.7%	90.6%	88.8%	88.8%	87.9%	90.1%	89.3%
consumptive	10.6%	10.2%	10.4%	10.1%	11.3%	9.4%	11.2%	11.2%	12.1%	9.9%	10.7%

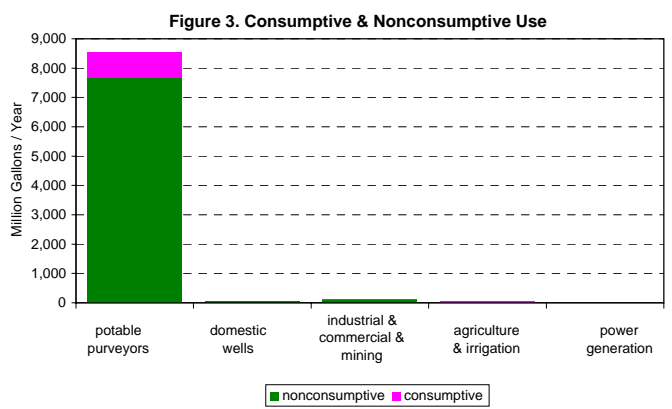


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

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	2,129	0	2,055	132	1,700	588	1,778	151	7,662	872
domestic wells	9	0	9	1	11	4	10	1	39	6
industrial & commercial & mining	6	1	21	2	49	5	25	3	102	10
agricultural & non-agricultural irrig.	0	1	1	11	2	22	1	10	5	44
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	2,144	2	2,086	146	1,764	619	1,814	164	7,808	931

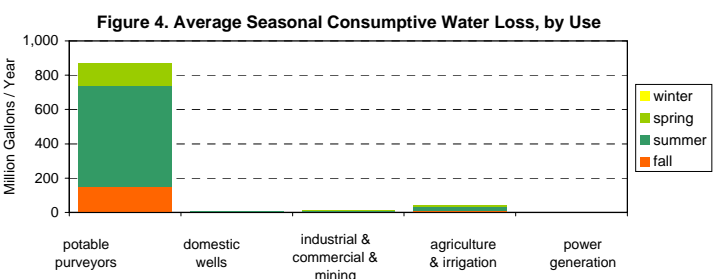


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	7,328	9,976	9,781	10,856	10,957	9,358	11,702	10,434	11,007	10,170	10,157
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	7,328	9,976	9,781	10,856	10,957	9,358	11,702	10,434	11,007	10,170	10,157

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	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

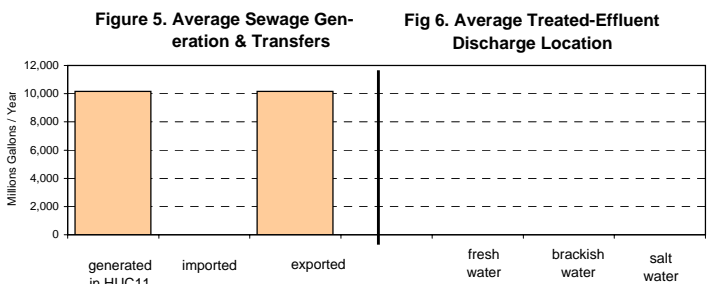


Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	19
ground water	16,478
total	16,497

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

Use Group	MGY
agricultural	0
commercial	37
industrial	37
irrigation	92
mining	0
potable supply	16,330
power generation	0
total	16,497

Table 9. HUC11 Descriptive Statistics

--- **Area:**

in this HUC11 only	50.9	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	50.9	sq. mi.

(this HUC11 onshore area: 50.9 sq. mi.)

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

Year	Population	Change
1940	34,865	-
1950	46,645	33.8%
1960	97,680	109.4%
1970	129,512	32.6%
1980	123,972	-4.3%
1990	119,966	-3.2%
2000	125,161	4.3%
2010	128,593	2.7% est. ¹²
2020	132,098	2.7% est. ¹²
2030	137,351	4.0% est. ¹²

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

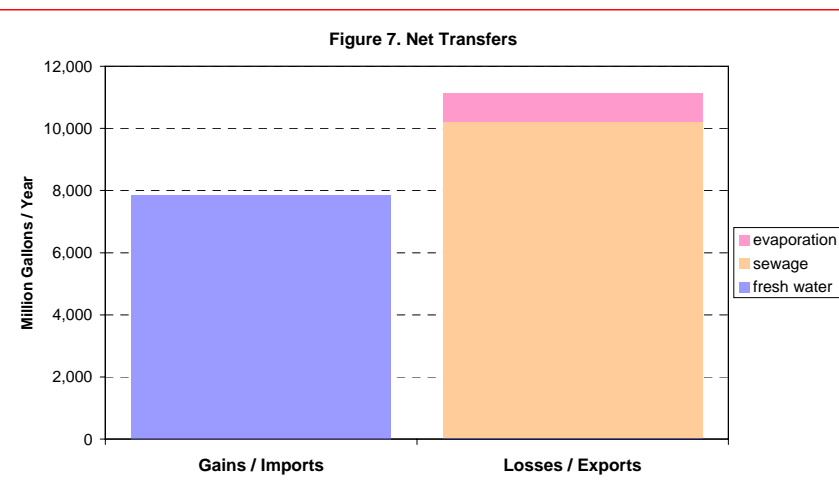
Type	Year		Change
	1986	1995	
ag.	0.9%	0.6%	-0.3%
barren	0.2%	0.4%	0.2%
forest	15.8%	14.7%	-1.1%
urban	70.4%	71.9%	1.5%
water	5.4%	5.4%	0.0%
wetlands	7.4%	7.1%	-0.3%

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

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

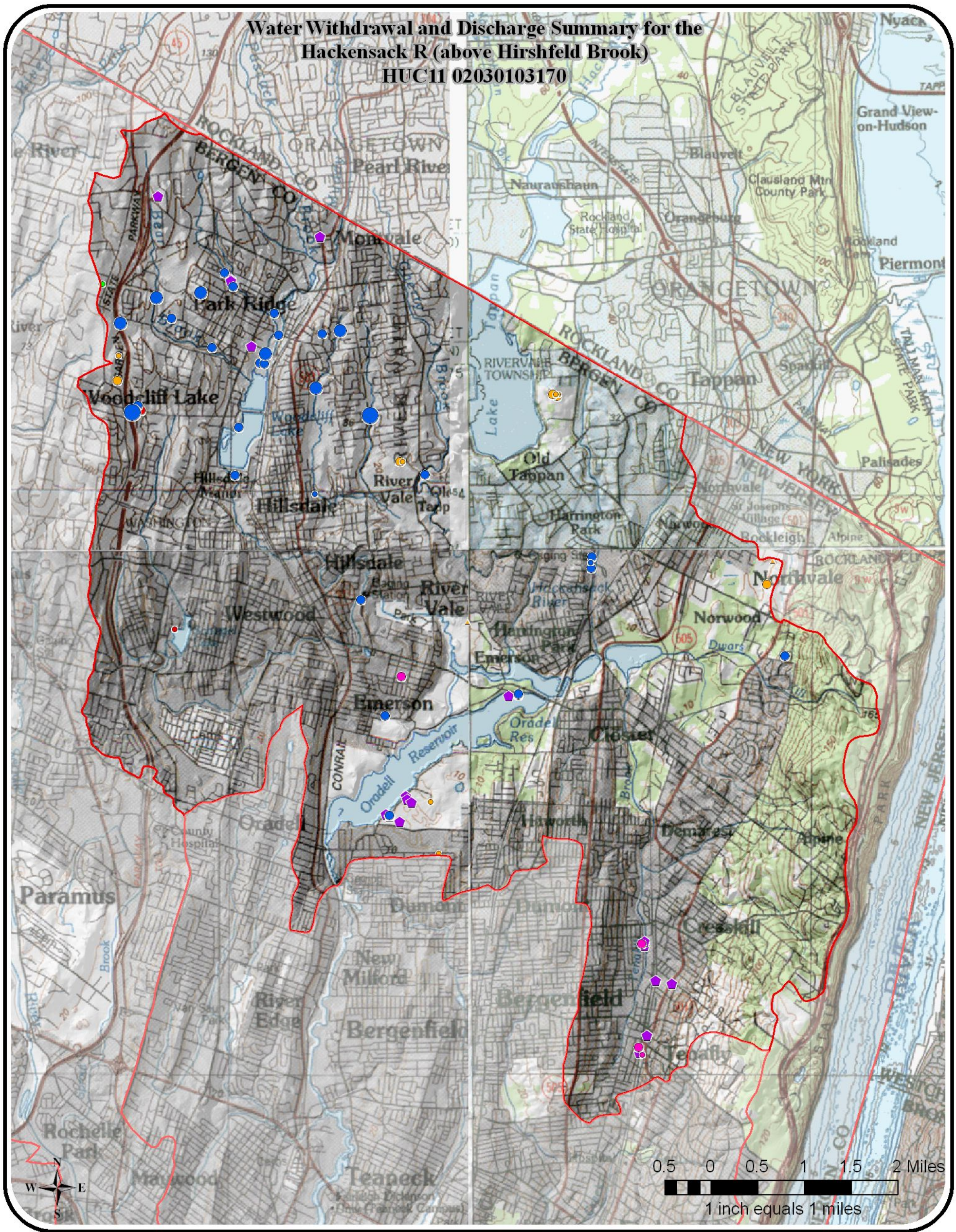
location	#	name
downstream:	02030103180	Hackensack R (below/incl Hirshfeld Bk)
(if any)	--	--
upstream:	--	--
(if any)	--	--



NOTES:

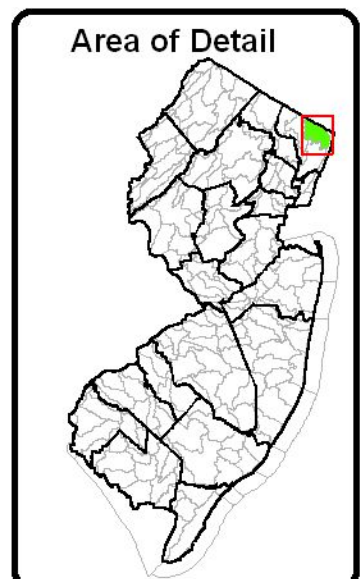
- 1 Salt and brackish water withdrawal and use is not included in this data.
- 2 This does not account for water released from onstream reservoirs for downstream intakes.
- 3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.
- 4 Nonconsumptive water use refers 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
Hackensack R (above Hirshfeld Brook)
HUC11 02030103170**



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 LOWER HACKENSACK RIVER --- 02030103180

WMA:	Hackensack and Pascack	05
HUC11:	Lower Hackensack River	02030103180

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	34,148	31,891	29,214	28,853	34,832	27,156	32,833	29,564	26,297	28,056	30,284
sum	34,148	31,891	29,214	28,853	34,832	27,156	32,833	29,564	26,297	28,056	30,284
<i>ground-water:</i> ³											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	556	549	544	466	476	468	452	438	482	447	488
sum	556	549	544	466	476	468	452	438	482	447	488
total withdrawals:	34,704	32,440	29,758	29,318	35,308	27,625	33,285	30,003	26,779	28,504	30,772

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

imports ¹¹	9,441	13,482	13,921	15,442	10,878	16,153	10,145	13,002	16,088	15,229	13,378
exports ¹¹	19,132	17,829	16,338	16,165	19,427	15,233	18,668	17,059	15,238	16,098	17,119
net	(9,691)	(4,346)	(2,417)	(723)	(8,549)	920	(8,523)	(4,057)	851	(869)	(3,741)

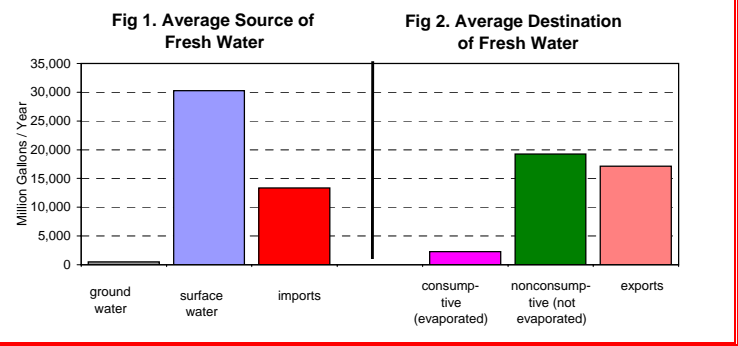


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
<i>potable purveyors</i>											
nonconsumptive	20,755	19,450	18,270	18,256	20,117	17,464	19,991	19,325	17,418	18,563	18,961
consumptive	2,369	2,138	2,063	1,967	2,424	1,751	2,335	2,300	2,148	1,984	2,148
<i>domestic wells</i>											
nonconsumptive	1	1	1	1	1	1	1	1	1	1	1
consumptive	0	0	0	0	0	0	0	0	0	0	0
<i>industrial & commercial & mining</i>											
nonconsumptive	310	294	282	265	257	253	253	272	284	250	272
consumptive	35	33	31	30	29	28	27	30	32	28	30
<i>agricultural & non-agricultural irrigation</i>											
nonconsumptive	1	2	1	15	17	17	15	15	15	11	11
consumptive	5	21	6	139	157	153	137	134	137	103	99
<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	21,067	19,747	18,555	18,538	20,392	17,736	20,260	19,613	17,719	18,826	19,245
consumptive	2,409	2,192	2,101	2,136	2,610	1,933	2,499	2,464	2,317	2,115	2,277
PERCENTAGES:											
nonconsumptive	89.7%	90.0%	89.8%	89.7%	88.7%	90.2%	89.0%	88.8%	88.4%	89.9%	89.4%
consumptive	10.3%	10.0%	10.2%	10.3%	11.3%	9.8%	11.0%	11.2%	11.6%	10.1%	10.6%

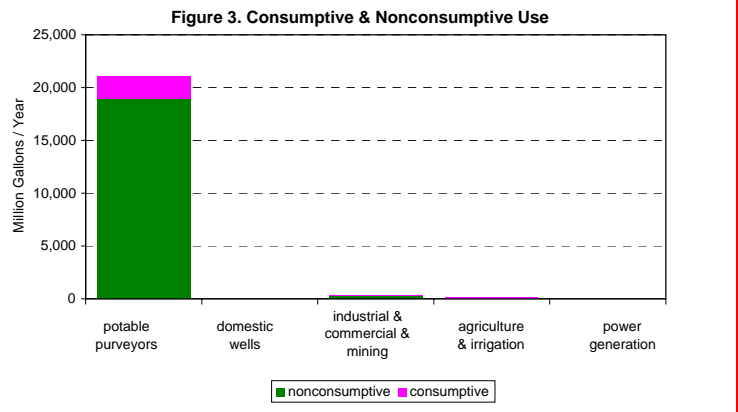


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

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	5,305	0	5,035	323	4,164	1,440	4,569	387	19,073	2,150
domestic wells	0	0	0	0	0	0	0	0	1	0
industrial & commercial & mining	63	7	72	8	73	8	65	7	272	30
agricultural & non-agricultural irrig.	2	18	2	22	4	36	3	23	11	99
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	5,370	25	5,110	353	4,241	1,484	4,637	417	19,358	2,279

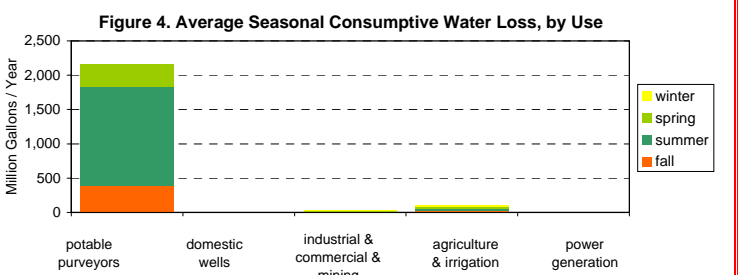


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	22,691	26,111	25,794	27,319	27,467	24,085	27,805	25,694	26,463	24,980	25,841
imported to HUC11	10,182	13,864	13,592	15,086	15,226	13,004	16,262	14,500	15,296	14,133	14,114
exported from HUC11	9,622	9,260	8,922	9,372	9,475	8,795	9,528	9,145	9,274	8,884	9,228

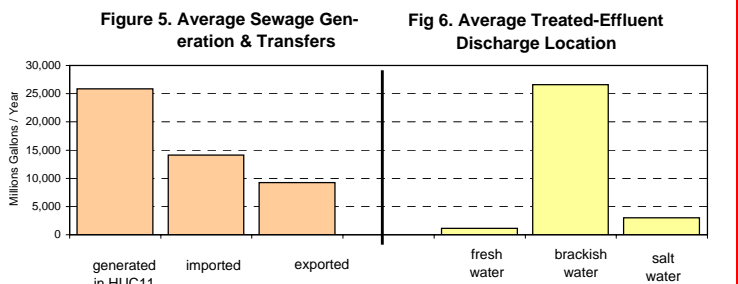


Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges⁹ in the HUC11 (millions of gallons)

destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
fresh water	1,138	1,089	1,117	1,082	1,223	1,118	1,342	1,186	1,173	1,132	1,160
brackish water	19,175	26,108	25,598	28,410	28,674	24,490	30,626	27,307	28,806	26,615	26,581
salt water	2,939	3,518	3,750	3,541	3,320	2,687	2,571	2,556	2,506	2,481	2,987
sum:	23,251	30,715	30,464	33,033	33,217	28,295	34,538	31,048	32,485	30,229	30,728

Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	14,430
ground water	1,495
total	15,926

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

Use Group	MGY
agricultural	0
commercial	0
industrial	1,005
irrigation	367
mining	0
potable supply	14,554
power generation	0
total	15,926

Table 9. HUC11 Descriptive Statistics

--- **Area:**

in this HUC11 only	85.1	sq. mi.
upstream HUC11s	50.9	sq. mi.
total watershed	136.0	sq. mi.
(this HUC11 onshore area:	82.4	sq. mi.)

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

Year	Population	Change
1940	409,253	-
1950	467,663	14.3%
1960	535,788	14.6%
1970	566,340	5.7%
1980	528,349	-6.7%
1990	524,119	-0.8%
2000	571,516	9.0%
2010	602,779	5.5% est. ¹²
2020	633,644	5.1% est. ¹²
2030	674,373	6.4% est. ¹²

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

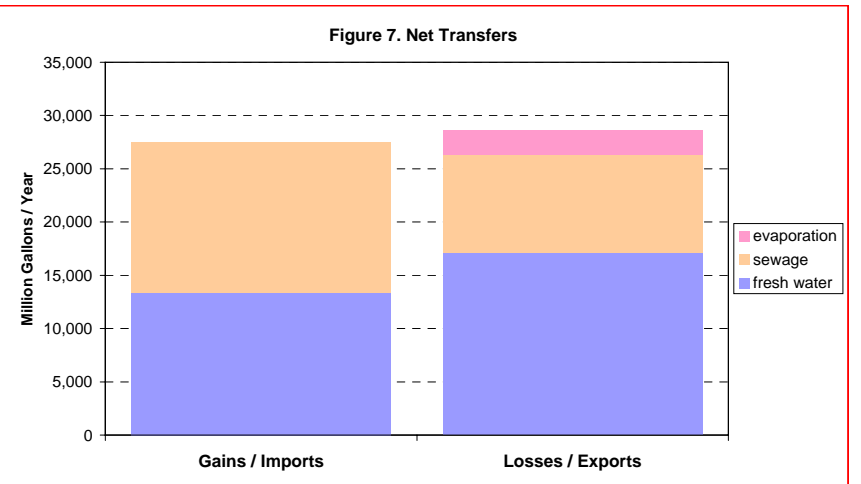
Type	1986	1995	Change
ag.	0.0%	0.0%	0.0%
barren	1.9%	1.6%	-0.3%
forest	6.9%	6.7%	-0.2%
urban	74.1%	74.8%	0.7%
water	7.4%	7.3%	-0.1%
wetlands	9.6%	9.6%	0.0%

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

Pinelands:	0.0%
Highlands:	0.0%

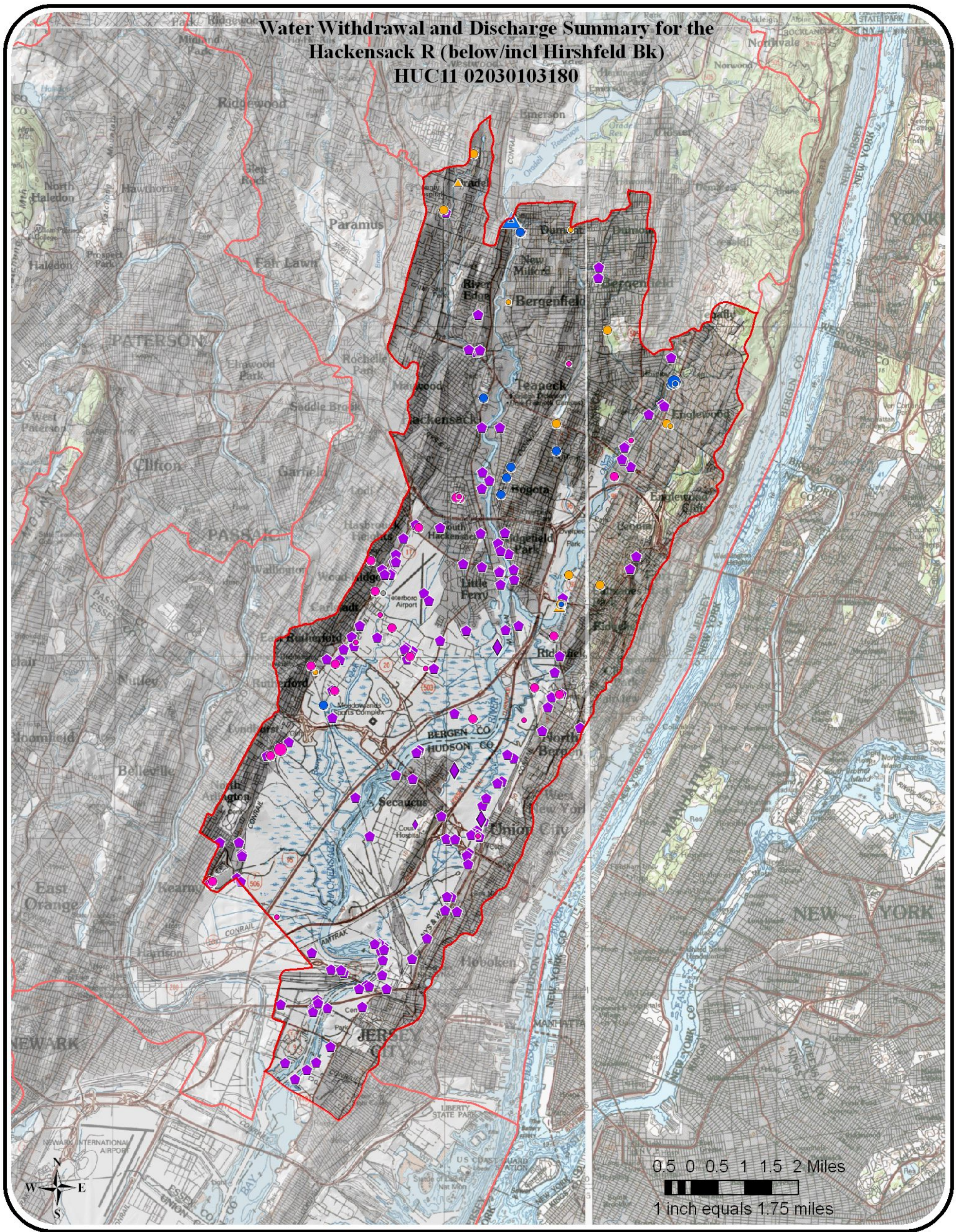
Table 10. Upstream and downstream HUC11s (in NJ)

location	#	name
downstream:	02030104010	Newark Bay / Kill Van Kull / Upr NY Bay
(if any)	--	--
upstream:	02030103170	Hackensack R (above Hirshfeld Brook)
(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 Hackensack R (below/incl Hirshfeld Bk) HUC11 02030103180



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	●

