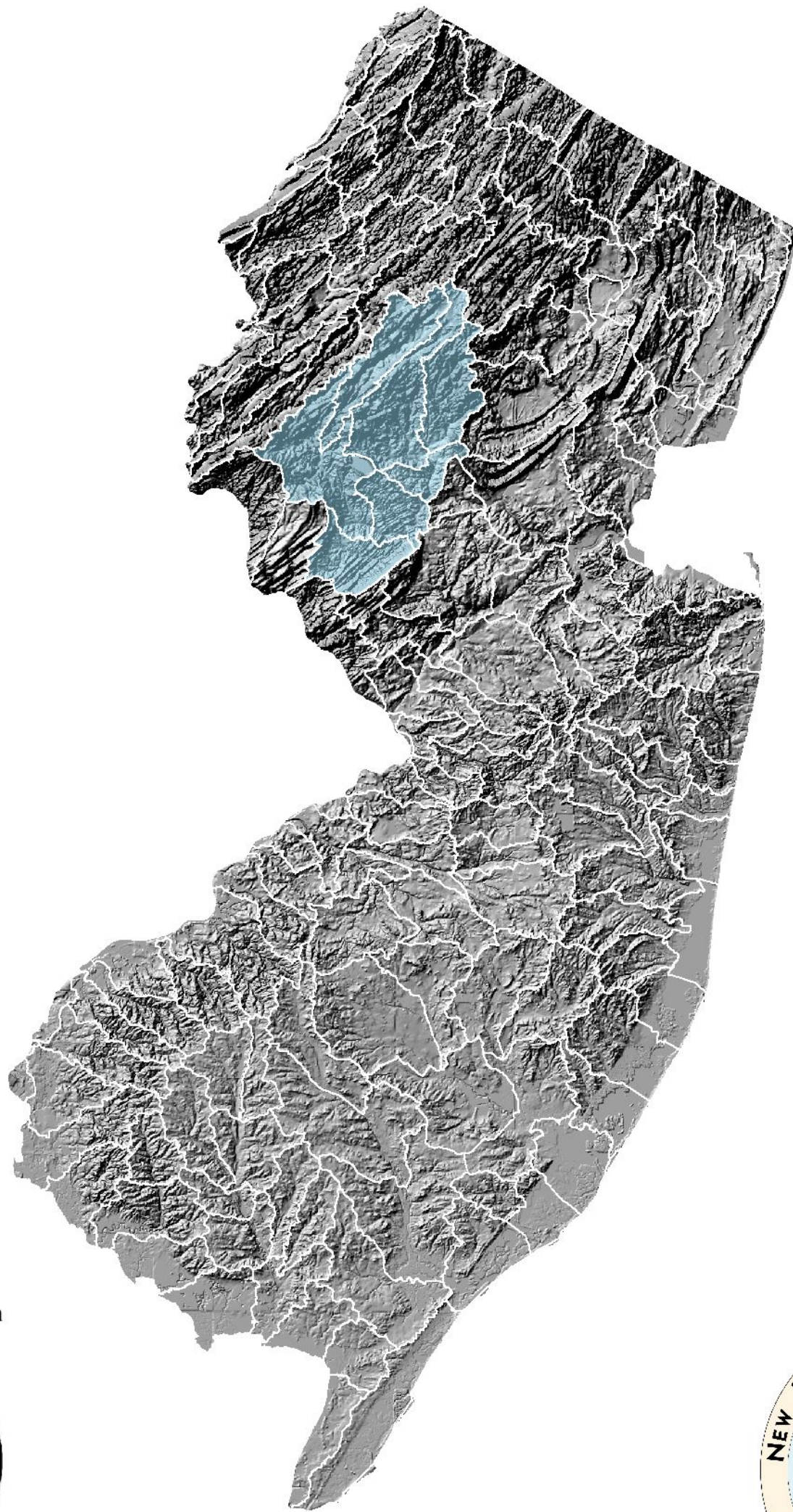


New Jersey Water Withdrawals, Uses, Transfers, and Discharges by HUC11, 1990 to 1999

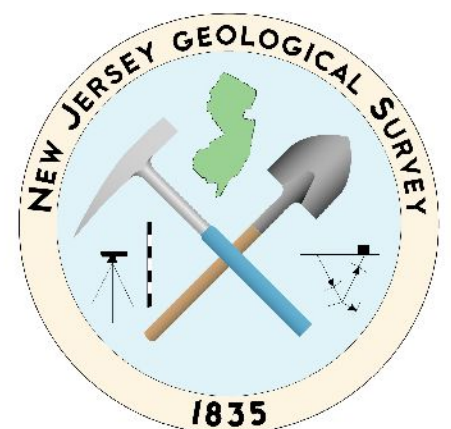
Appendix 8: HUC11 Tables, Figures and Maps WMA 8 - North and South Branch Raritan



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NEW JERSEY DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Water Withdrawals, Transfers and Discharges for SOUTH BRANCH RARITAN RIVER (ABOVE SPRUCE RUN) --- 02030105010

WMA:	North and South Branch Raritan	08
HUC11:	South Branch Raritan River (above Spruce Run)	02030105010

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	75	27	33	34	7	33	19	80	77	43	43
sum	75	27	33	34	7	33	19	80	77	43	43
ground-water:³											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	1,432	1,553	1,923	2,353	2,162	2,229	2,213	2,319	2,472	2,313	2,097
sum	1,432	1,553	1,923	2,353	2,162	2,229	2,213	2,319	2,472	2,313	2,097
total withdrawals:	1,507	1,580	1,956	2,387	2,169	2,262	2,232	2,399	2,548	2,356	2,140

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	487	624	628	510	751	751	672	741	659	629	645
exports ¹¹	26	209	533	712	696	744	699	759	855	697	593
net	461	415	94	(201)	54	6	(27)	(18)	(196)	(68)	52

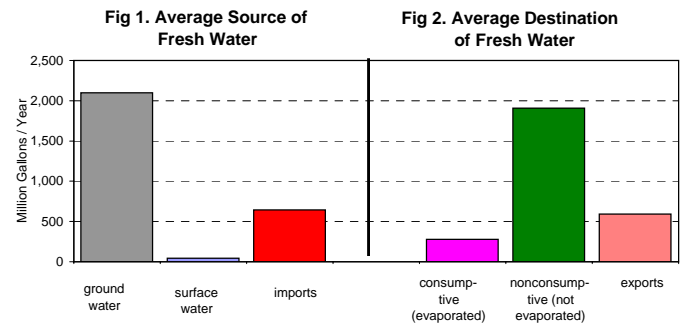


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	1,146	1,212	1,238	1,326	1,377	1,385	1,311	1,446	1,410	1,420	1,327
consumptive	131	150	142	161	161	172	157	177	166	180	160
domestic wells											
nonconsumptive	419	420	425	430	436	442	445	449	455	463	438
consumptive	59	59	60	61	61	62	63	63	64	65	62
industrial & commercial & mining											
nonconsumptive	125	106	134	137	153	137	195	143	154	92	138
consumptive	14	12	15	15	17	15	9	16	17	10	14
agricultural & non-agricultural irrigation											
nonconsumptive	7	4	3	5	1	5	2	8	8	5	5
consumptive	67	34	30	45	8	46	18	75	74	49	45
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	1,697	1,741	1,800	1,898	1,967	1,969	1,953	2,047	2,027	1,981	1,908
consumptive	271	254	246	281	248	295	247	331	322	304	280
PERCENTAGES:											
nonconsumptive	86.2%	87.3%	88.0%	87.1%	88.8%	87.0%	88.8%	86.1%	86.3%	86.7%	87.2%
consumptive	13.8%	12.7%	12.0%	12.9%	11.2%	13.0%	11.2%	13.9%	13.7%	13.3%	12.8%

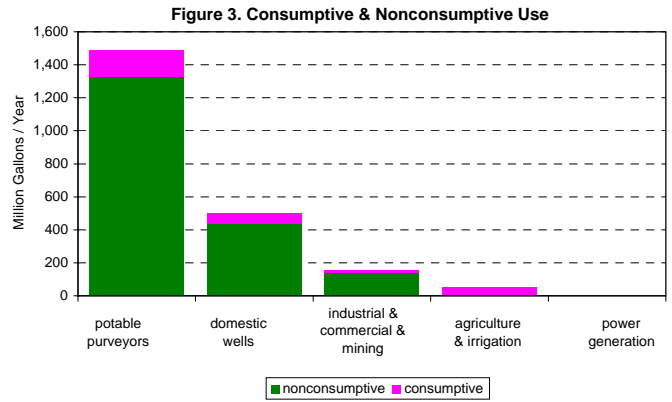


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

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	343	0	341	23	313	108	333	28	1,331	160
domestic wells	101	0	103	8	128	44	107	10	438	62
industrial & commercial & mining	31	3	35	3	41	4	30	3	138	14
agricultural & non-agricultural irrig.	0	0	1	5	3	30	1	9	5	45
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	475	4	480	39	485	187	471	50	1,912	280

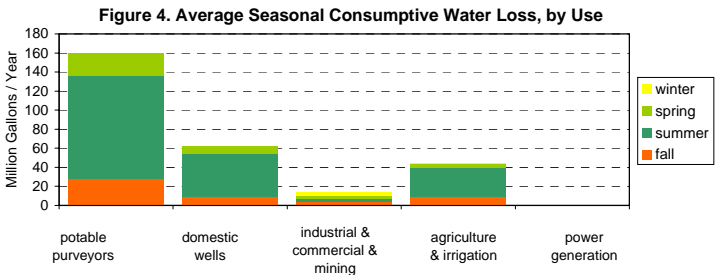


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	800	970	982	1,129	1,216	1,167	1,370	1,270	1,391	1,433	1,173
imported to HUC11	0	0	0	0	0	0	0	0	3	10	1
exported from HUC11	509	705	685	814	899	873	1,022	969	1,076	1,085	864

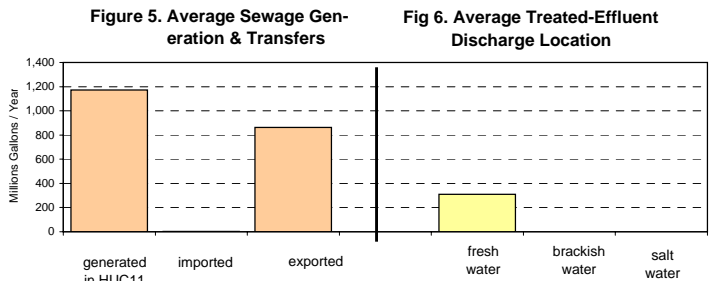


Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges⁹ in the HUC11 (millions of gallons)

destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
fresh water	291	266	296	315	317	294	348	301	318	358	310
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:	291	266	296	315	317	294	348	301	318	358	310

Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	58
ground water	2,095
total	2,153

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

Use Group	MGY
agricultural	15
commercial	0
industrial	254
irrigation	58
mining	0
potable supply	1,826
power generation	0
total	2,153

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	71.0	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	71.0	sq. mi.

(this HUC11 onshore area: 71.0 sq. mi.)

--- Population of this HUC11:

Year	Population	Change
1940	6,913	-
1950	8,593	24.3%
1960	12,590	46.5%
1970	22,413	78.0%
1980	32,667	45.7%
1990	38,000	16.3%
2000	42,594	12.1%
2010	44,334	4.1% est. ¹²
2020	44,337	0.0% est. ¹²
2030	46,894	5.8% est. ¹²

--- Land Use of this HUC11:

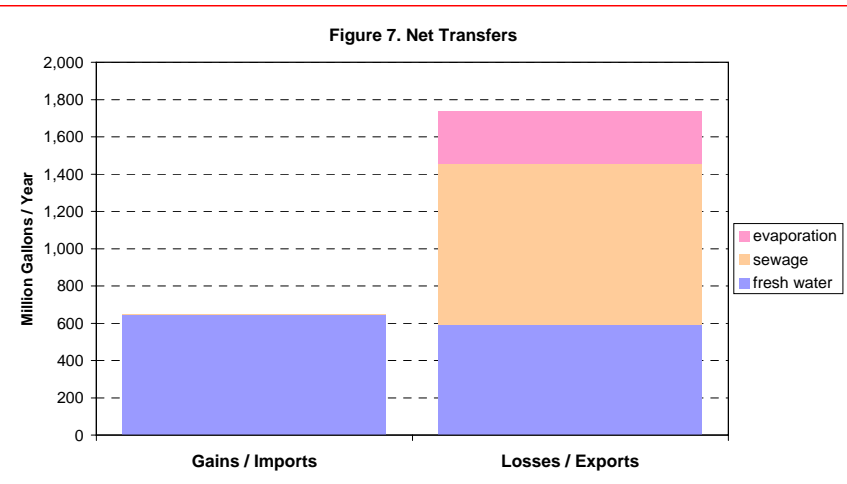
Type	Year		Change
	1986	1995	
ag.	15.9%	13.4%	-2.5%
barren	0.4%	0.9%	0.5%
forest	44.6%	42.3%	-2.3%
urban	24.2%	28.7%	4.4%
water	1.5%	1.6%	0.0%
wetlands	13.4%	13.1%	-0.2%

--- % of this HUC11 in:

Pinelands:	0.0%
Highlands:	100.0%

Table 10. Upstream and downstream HUC11s (in NJ)

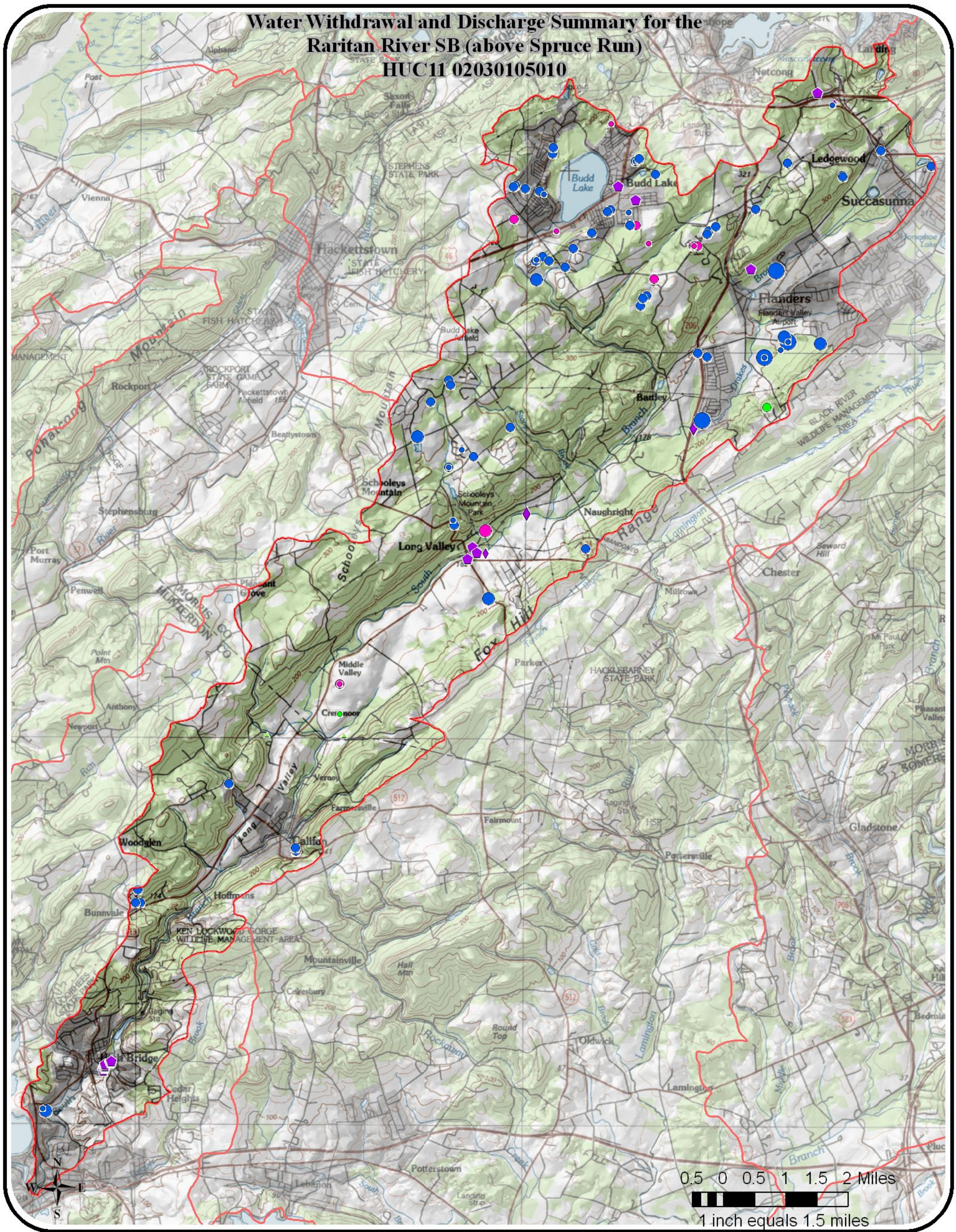
location	#	name
downstream:	02030105020	Raritan River SB (3 Brgds to Spruce Run)
(if any)	--	--
upstream:	--	--
(if any)	--	--



NOTES:

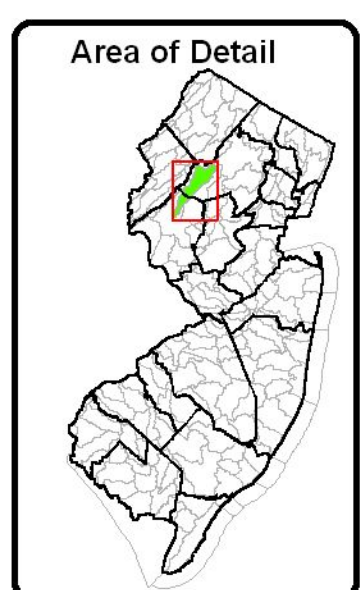
- 1 Salt and brackish water withdrawal and use is not included in this data.
- 2 This does not account for water released from onstream reservoirs for downstream intakes.
- 3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.
- 4 Nonconsumptive water use refers 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 Raritan River SB (above Spruce Run) HUC11 02030105010



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	●



Water Withdrawals, Transfers and Discharges for SOUTH BRANCH RARITAN RIVER (3 BRIDGES TO SPRUCE RUN) --- 02030105020

WMA:	North and South Branch Raritan	08
HUC11:	South Branch Raritan River (3 Bridges to Spruce Run)	02030105020

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	8	20	12	17	20	38	13	25	36	32	22
sum	8	20	12	17	20	38	13	25	36	32	22
<i>ground-water:</i> ³											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	1,533	1,582	1,364	1,438	1,492	1,497	1,500	1,497	1,516	1,615	1,504
sum	1,533	1,582	1,364	1,438	1,492	1,497	1,500	1,497	1,516	1,615	1,504
total withdrawals:	1,541	1,603	1,376	1,456	1,512	1,536	1,512	1,522	1,552	1,647	1,526

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	547	592	701	735	800	793	806	788	769	802	733
exports ¹¹	448	421	383	416	442	433	422	393	388	440	418
net	98	171	318	319	358	360	384	396	381	362	315

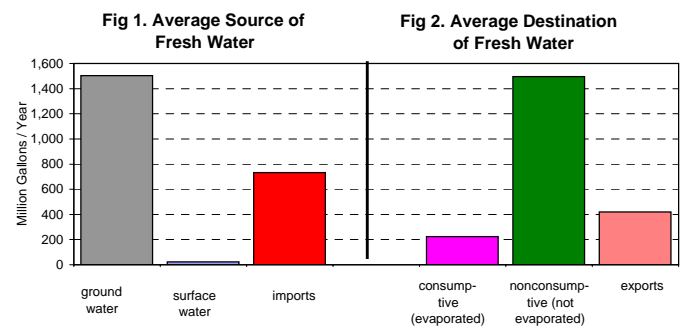


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
<i>potable purveyors</i>											
nonconsumptive	811	819	761	810	897	893	904	935	897	923	865
consumptive	92	111	100	111	119	123	120	127	128	131	116
<i>domestic wells</i>											
nonconsumptive	465	469	478	489	500	509	518	527	540	554	505
consumptive	66	66	67	69	70	72	73	74	76	78	71
<i>industrial & commercial & mining</i>											
nonconsumptive	132	166	161	143	127	102	99	88	108	94	122
consumptive	15	18	18	16	14	11	11	10	12	10	14
<i>agricultural & non-agricultural irrigation</i>											
nonconsumptive	1	2	1	1	1	3	1	4	4	7	2
consumptive	6	22	7	8	7	30	13	37	36	59	22
<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	1,409	1,456	1,401	1,443	1,525	1,507	1,524	1,555	1,549	1,578	1,494
consumptive	178	217	193	204	211	235	218	248	252	278	223
PERCENTAGES:											
nonconsumptive	88.8%	87.0%	87.9%	87.6%	87.8%	86.5%	87.5%	86.3%	86.0%	85.0%	87.0%
consumptive	11.2%	13.0%	12.1%	12.4%	12.2%	13.5%	12.5%	13.7%	14.0%	15.0%	13.0%

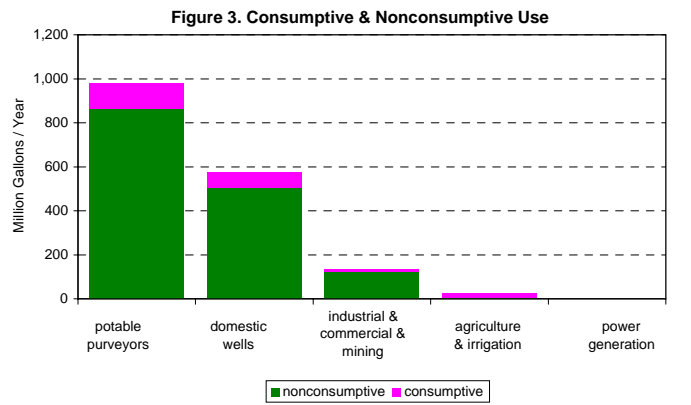


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

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	257	0	254	17	228	79	245	21	984	117
domestic wells	116	0	119	9	147	51	124	11	505	71
industrial & commercial & mining	27	3	29	3	37	4	30	3	122	14
agricultural & non-agricultural irrig.	0	0	0	4	2	14	0	4	2	22
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	400	3	401	33	413	148	399	40	1,614	224

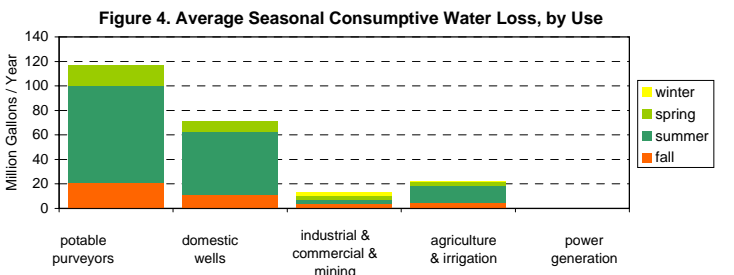


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	1,689	992	1,220	1,066	1,099	1,119	1,685	1,264	1,369	1,370	1,287
imported to HUC11	854	435	443	461	466	446	554	484	492	465	510
exported from HUC11	0	0	1	1	1	1	1	1	1	1	1

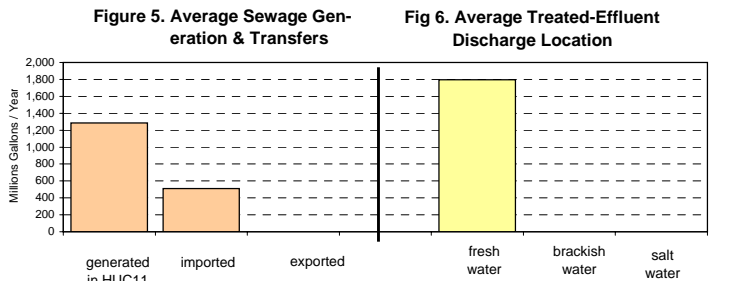


Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges⁹ in the HUC11 (millions of gallons)

destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
fresh water	2,543	1,426	1,663	1,526	1,565	1,564	2,239	1,747	1,860	1,834	1,797
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:	2,543	1,426	1,663	1,526	1,565	1,564	2,239	1,747	1,860	1,834	1,797

Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	1,512
ground water	1,498
total	3,010

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

Use Group	MGY
agricultural	864
commercial	37
industrial	286
irrigation	37
mining	0
potable supply	1,785
power generation	0
total	3,010

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	111.0	sq. mi.
upstream HUC11s	71.0	sq. mi.
total watershed	181.9	sq. mi.

(this HUC11 onshore area: 111.0 sq. mi.)

--- Population of this HUC11:

Year	Population	Change
1940	9,922	-
1950	11,864	19.6%
1960	14,747	24.3%
1970	19,680	33.4%
1980	25,737	30.8%
1990	33,574	30.4%
2000	39,395	17.3%
2010	43,263	9.8% est. ¹²
2020	44,412	2.7% est. ¹²
2030	46,815	5.4% est. ¹²

--- Land Use of this HUC11:

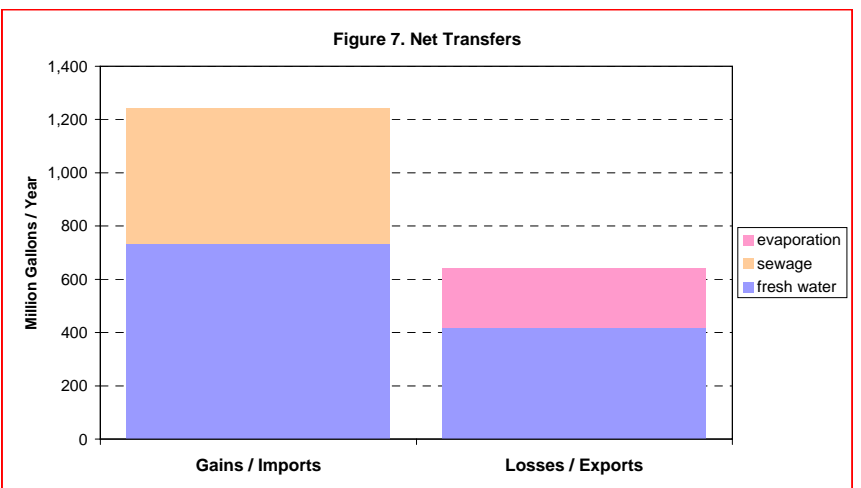
Type	Year		Change
	1986	1995	
ag.	30.1%	25.7%	-4.4%
barren	0.8%	0.8%	0.0%
forest	35.7%	35.8%	0.1%
urban	19.4%	23.8%	4.5%
water	5.7%	5.7%	0.0%
wetlands	8.3%	8.2%	-0.1%

--- % of this HUC11 in:

Pinelands:	0.0%
Highlands:	67.9%

Table 10. Upstream and downstream HUC11s (in NJ)

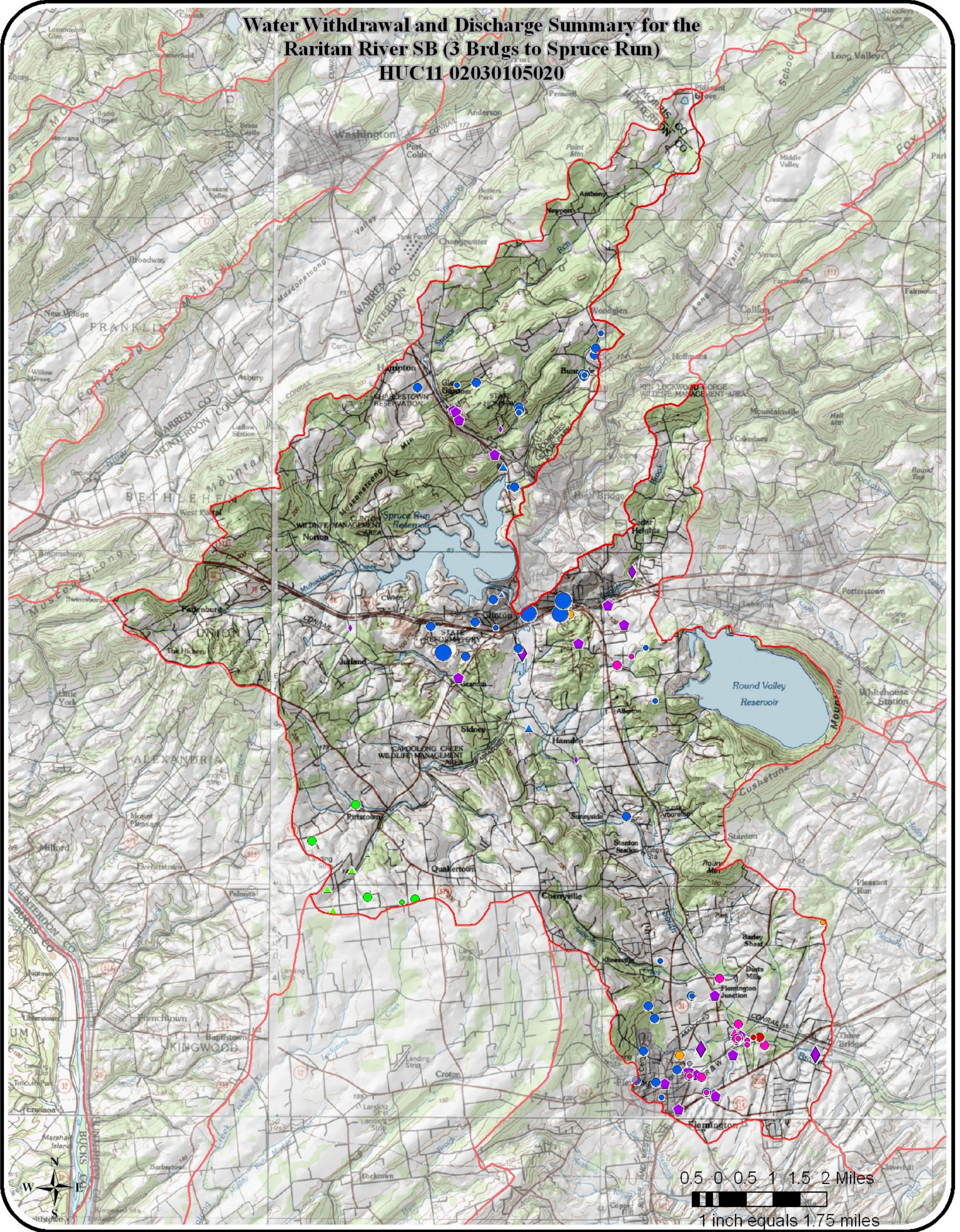
location	#	name
downstream:	02030105040	Raritan River SB (NB to Three Bridges)
(if any)		
upstream:	02030105010	Raritan River SB (above Spruce Run)
(if any)		
	--	--
	--	--
	--	--
	--	--
	--	--
	--	--
	--	--
	--	--



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 Raritan River SB (3 Brdgs to Spruce Run) HUC11 02030105020

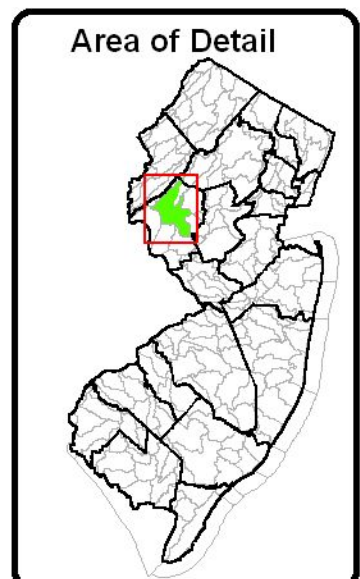


Key for Discharge Data		
1999 Treated Effluent Discharge		
0 - 50	MGY	◆
50 - 100	MGY	◆
100 - 500	MGY	◆
> 500	MGY	◆
Other Permitted Discharge		
		◆

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 NESHANIC RIVER --- 02030105030

WMA:	North and South Branch Raritan	08
HUC11:	Neshanic River	02030105030

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	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	404	419	646	626	612	499	514	478	512	510	522
sum	404	419	646	626	612	499	514	478	512	510	522
total withdrawals:	404	419	646	626	612	499	514	478	512	510	522

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	813	818	761	820	932	927	899	921	928	948	877
exports ¹¹	262	260	393	411	421	412	410	372	375	378	369
net	551	559	368	409	512	516	489	550	553	570	507

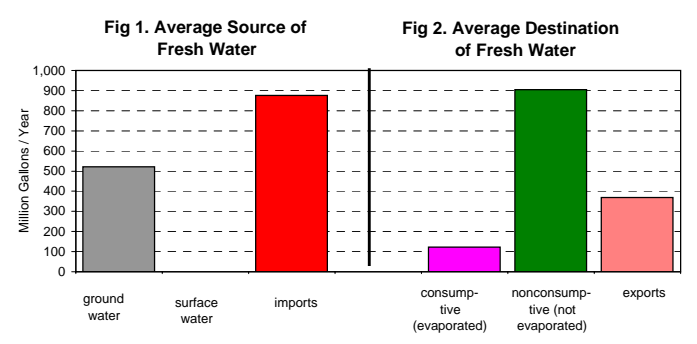


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	496	502	478	512	608	606	592	612	617	636	566
consumptive	55	57	53	65	72	73	69	76	78	81	68
domestic wells											
nonconsumptive	261	263	269	274	279	284	289	295	301	307	282
consumptive	37	37	38	39	39	40	41	41	42	43	40
industrial & commercial & mining											
nonconsumptive	85	92	147	122	106	5	0	0	0	0	56
consumptive	9	10	16	14	12	1	0	0	0	0	6
agricultural & non-agricultural irrigation											
nonconsumptive	1	2	1	1	1	0	0	0	3	1	1
consumptive	11	15	11	7	5	4	3	1	23	11	9
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	843	858	896	909	993	895	881	907	921	945	905
consumptive	112	120	118	124	129	118	113	118	143	135	123
PERCENTAGES:											
nonconsumptive	88.2%	87.8%	88.3%	88.0%	88.5%	88.3%	88.7%	88.5%	86.5%	87.5%	88.0%
consumptive	11.8%	12.2%	11.7%	12.0%	11.5%	11.7%	11.3%	11.5%	13.5%	12.5%	12.0%

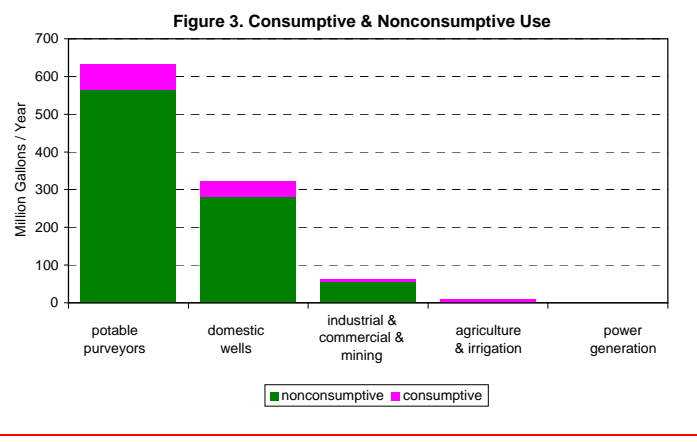


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

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	149	0	148	10	134	46	136	12	568	68
domestic wells	65	0	66	5	82	29	69	6	282	40
industrial & commercial & mining	13	1	14	2	15	2	14	2	56	6
agricultural & non-agricultural irrig.	0	0	0	2	1	5	0	2	1	9
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	227	1	229	19	232	82	219	21	906	123

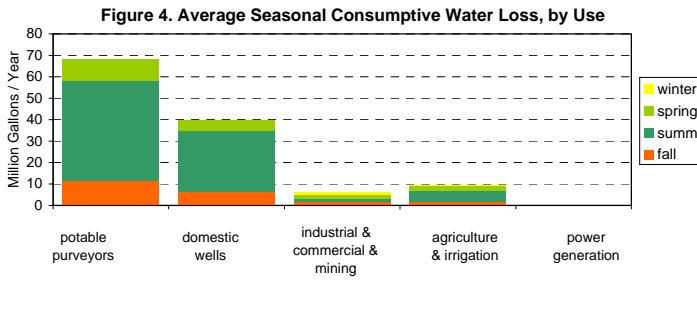


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	646	278	282	291	293	275	355	308	308	289	332
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	646	278	282	291	293	275	355	308	308	289	332

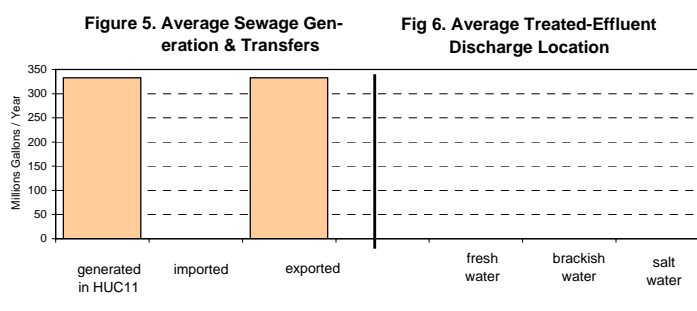


Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges⁹ in the HUC11 (millions of gallons)

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	0
ground water	170
total	170

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

Use Group	MGY
agricultural	0
commercial	0
industrial	0
irrigation	30
mining	0
potable supply	140
power generation	0
total	170

Table 9. HUC11 Descriptive Statistics

--- **Area:**

in this HUC11 only	55.7	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	55.7	sq. mi.

(this HUC11 onshore area: 55.7 sq. mi.)

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

Year	Population	Change
1940	3,124	-
1950	3,977	27.3%
1960	5,824	46.5%
1970	8,209	40.9%
1980	10,793	31.5%
1990	16,584	53.6%
2000	19,884	19.9%
2010	22,326	12.3% est. ¹²
2020	23,461	5.1% est. ¹²
2030	24,539	4.6% est. ¹²

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

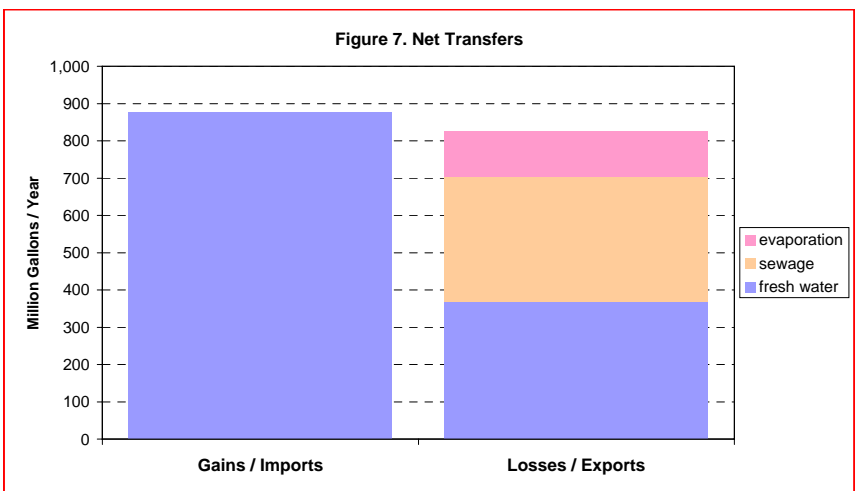
Type	Year		Change
	1986	1995	
ag.	50.9%	44.8%	-6.1%
barren	0.8%	0.2%	-0.6%
forest	21.3%	22.5%	1.1%
urban	14.9%	20.7%	5.8%
water	0.3%	0.3%	0.0%
wetlands	11.7%	11.5%	-0.1%

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

Pinelands:	0.0%
Highlands:	0.0%

Table 10. Upstream and downstream HUC11s (in NJ)

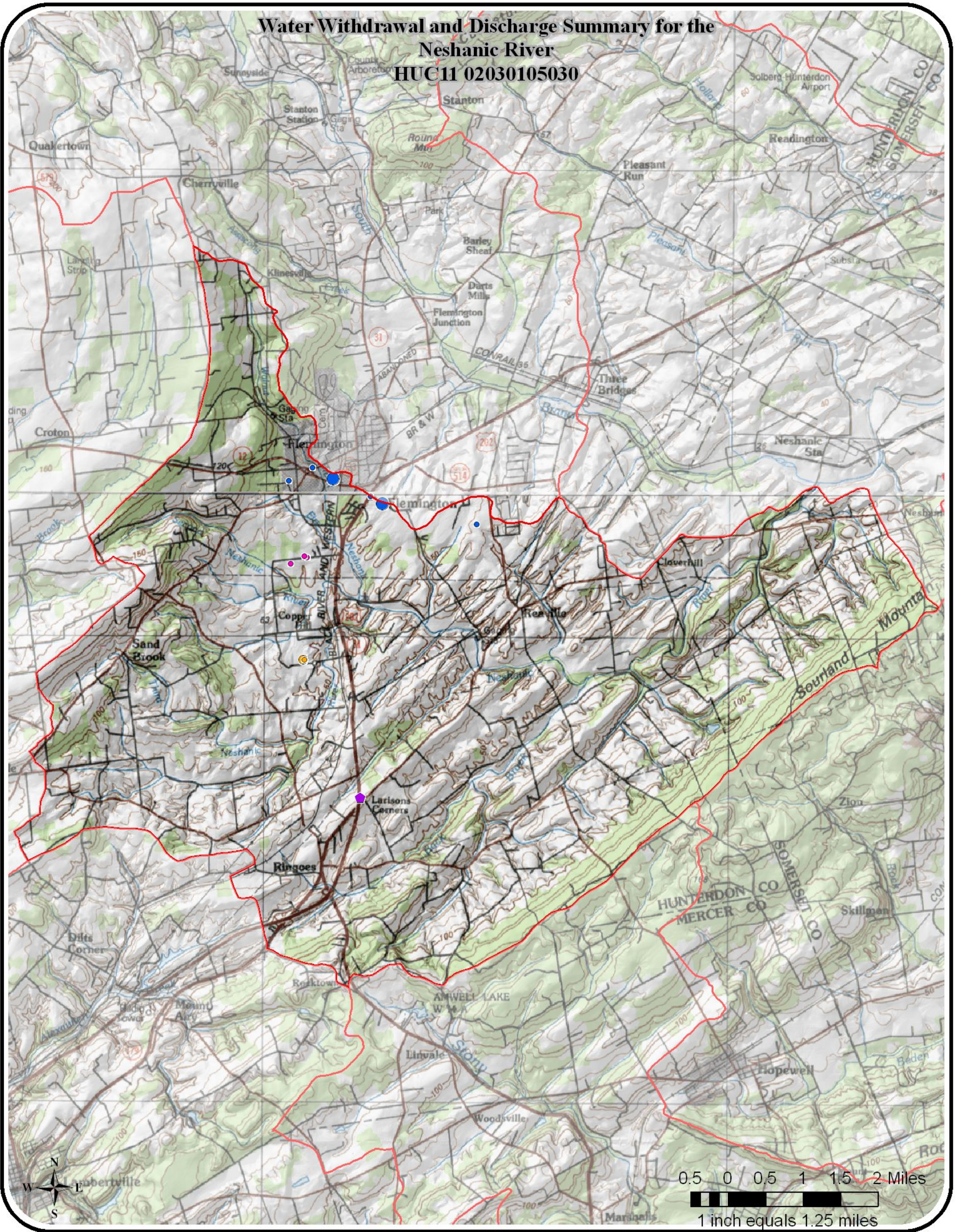
location	#	name
downstream:	02030105040	Raritan River SB (NB to Three Bridges)
(if any)	--	--
upstream:	--	--
(if any)	--	--



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.

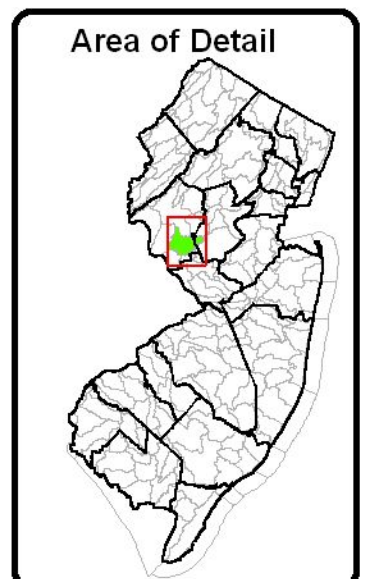
Water Withdrawal and Discharge Summary for the Neshanic River HUC11 02030105030



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	□
GW Unconfined	○
SW	△
	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 SOUTH BRANCH RARITAN RIVER (NORTH BRANCH TO THREE BRIDGES) --- 02030105040

WMA:	North and South Branch Raritan	08
HUC11:	South Branch Raritan River (NB to Three Bridges)	02030105040

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	0	0	0	20	17	35	7
sum	0	0	0	0	0	0	0	20	17	35	7
ground-water:³											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	316	318	333	362	356	357	360	361	366	363	349
sum	316	318	333	362	356	357	360	361	366	363	349
total withdrawals:	316	318	333	362	356	357	360	380	384	398	357

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	1,041	1,046	1,003	1,081	1,227	1,226	1,188	1,215	1,226	1,251	1,150
exports ¹¹	355	352	355	375	387	381	369	353	353	353	363
net	686	693	648	706	840	845	819	862	873	899	787

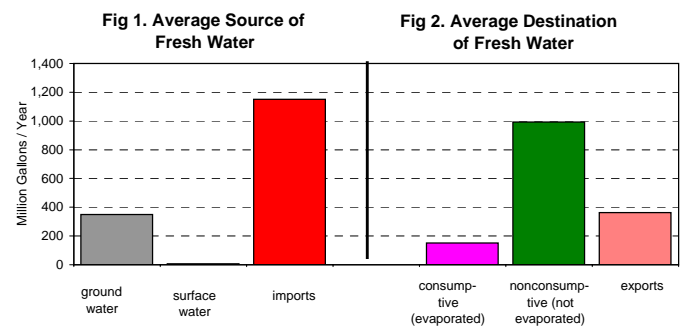


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	618	623	583	625	751	753	734	767	775	797	703
consumptive	68	71	65	80	89	92	85	95	98	102	84
domestic wells											
nonconsumptive	265	266	269	276	281	285	288	290	295	299	281
consumptive	37	37	38	39	40	40	41	41	42	42	40
industrial & commercial & mining											
nonconsumptive	10	7	8	6	8	7	6	2	3	0	6
consumptive	1	1	1	1	1	1	1	0	1	0	1
agricultural & non-agricultural irrigation											
nonconsumptive	0	1	2	4	3	2	3	5	4	6	3
consumptive	3	6	16	36	24	22	24	42	39	51	26
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	892	897	862	912	1,043	1,047	1,030	1,064	1,077	1,102	993
consumptive	110	115	119	156	154	155	150	178	179	195	151
PERCENTAGES:											
nonconsumptive	89.0%	88.6%	87.9%	85.4%	87.2%	87.1%	87.3%	85.7%	85.7%	85.0%	86.8%
consumptive	11.0%	11.4%	12.1%	14.6%	12.8%	12.9%	12.7%	14.3%	14.3%	15.0%	13.2%

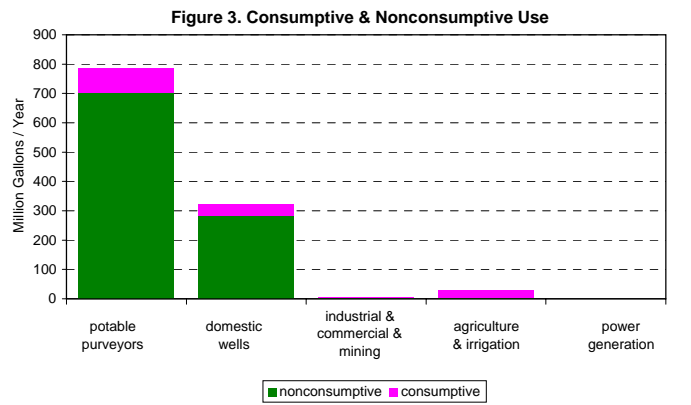


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

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	185	0	184	12	167	58	168	14	703	84
domestic wells	65	0	66	5	82	28	69	6	281	40
industrial & commercial & mining	1	0	2	0	2	0	1	0	6	1
agricultural & non-agricultural irrig.	0	1	1	5	2	15	1	5	3	26
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	251	1	252	22	252	102	238	26	993	151

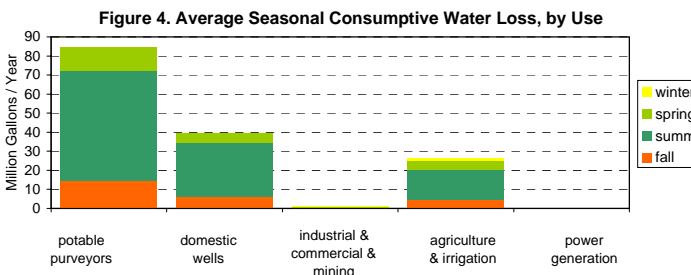


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	388	366	356	385	392	359	470	407	388	328	384
imported to HUC11	0	0	1	1	1	1	0	1	0	1	0
exported from HUC11	378	357	347	376	382	350	461	398	379	318	375

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	9	9	10	11	10	10	10	10	9	10	10
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:	9	9	10	11	10	10	10	10	9	10	10

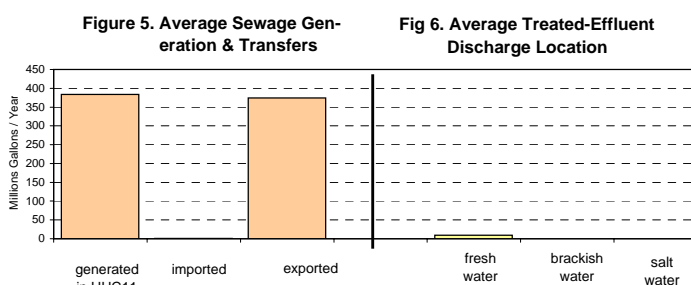


Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	14
ground water	186
total	199

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

Use Group	MGY
agricultural	79
commercial	74
industrial	0
irrigation	46
mining	0
potable supply	0
power generation	0
total	199

Table 9. HUC11 Descriptive Statistics

--- **Area:**

in this HUC11 only	41.8	sq. mi.
upstream HUC11s	237.6	sq. mi.
total watershed	279.5	sq. mi.

(this HUC11 onshore area: 41.8 sq. mi.)

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

Year	Population	Change
1940	2,443	-
1950	3,565	46.0%
1960	6,048	69.7%
1970	8,402	38.9%
1980	12,166	44.8%
1990	16,616	36.6%
2000	20,944	26.0%
2010	22,346	6.7% est. ¹²
2020	24,156	8.1% est. ¹²
2030	25,444	5.3% est. ¹²

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

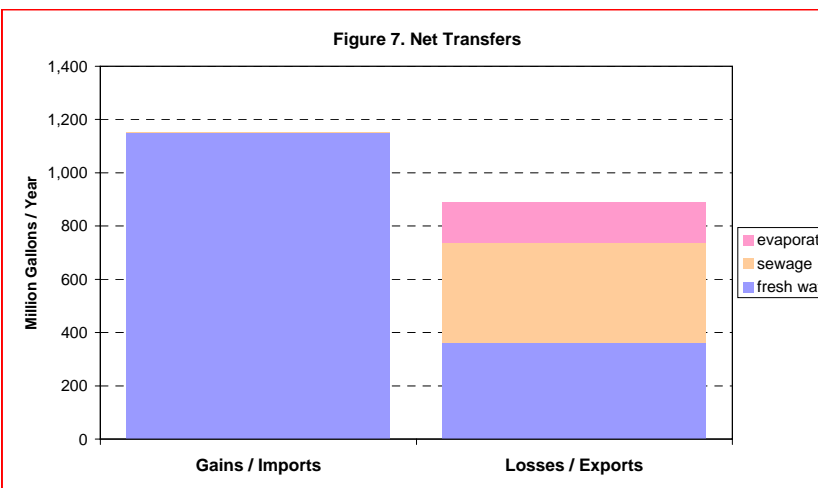
Type	Year		Change
	1986	1995	
ag.	44.5%	36.1%	-8.5%
barren	1.1%	0.8%	-0.2%
forest	20.9%	21.6%	0.7%
urban	24.4%	32.4%	8.1%
water	0.7%	0.7%	0.0%
wetlands	8.4%	8.3%	-0.1%

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

Pinelands:	0.0%
Highlands:	0.6%

Table 10. Upstream and downstream HUC11s (in NJ)

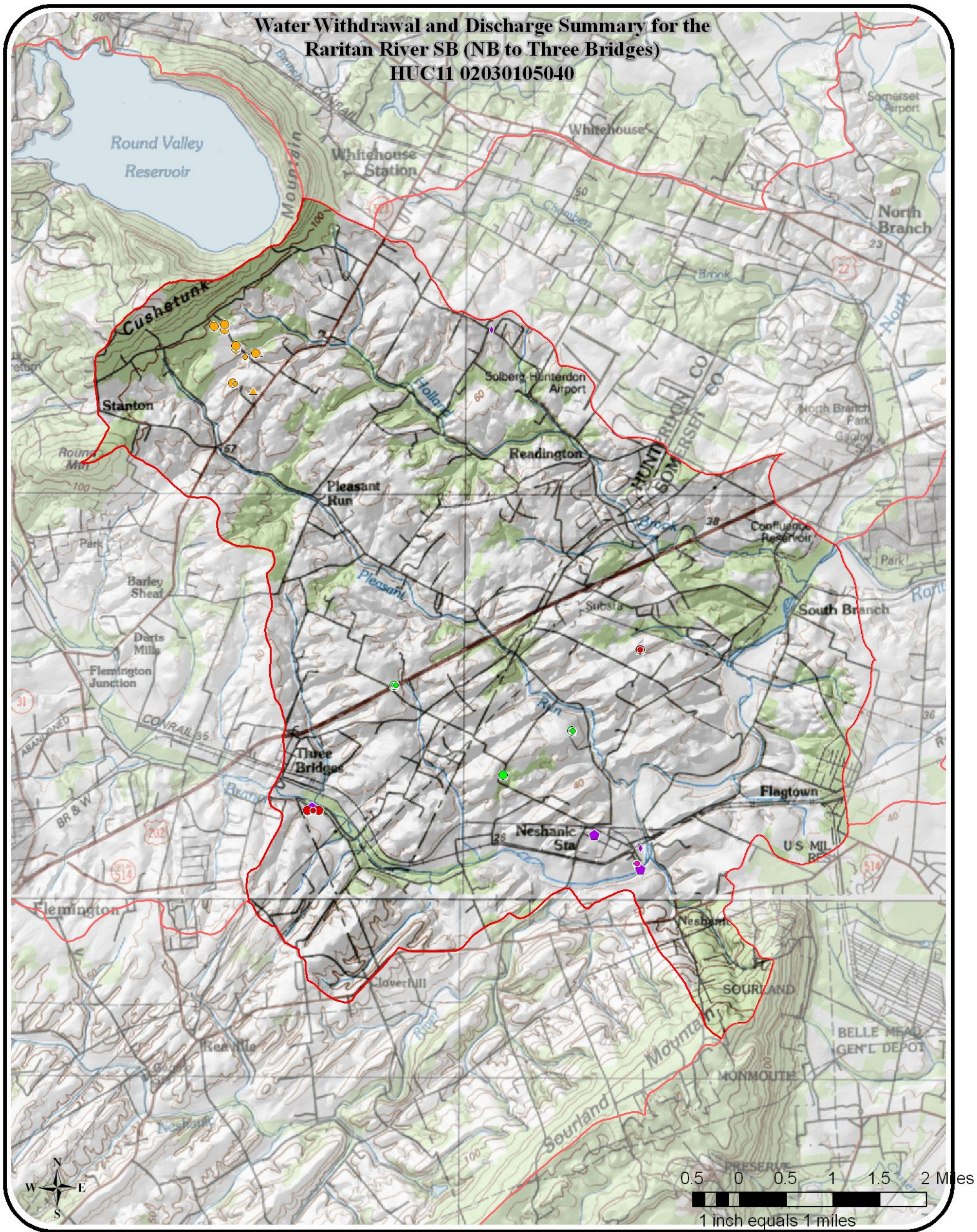
location	#	name
downstream:	02030105080	Raritan River Lower (Millstone to NB/SB)
(if any)		
upstream:	02030105010	Raritan River SB (above Spruce Run)
(if any)	02030105020	Raritan River SB (3 Brdgs to Spruce Run)
	02030105030	Neshanic River
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NOTES:

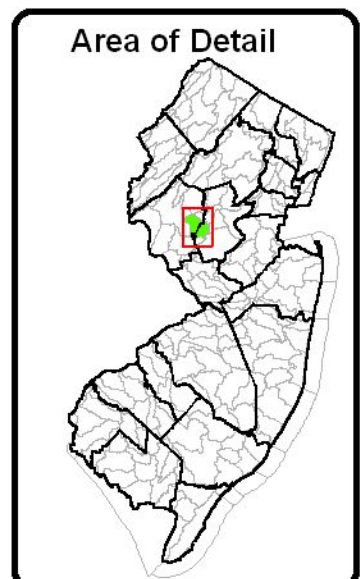
- 1 Salt and brackish water withdrawal and use is not included in this data.
- 2 This does not account for water released from onstream reservoirs for downstream intakes.
- 3 Includes both permitted ground-water withdrawals and estimated domestic well withdrawals.
- 4 Nonconsumptive water use refers 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
Raritan River SB (NB to Three Bridges)
HUC11 02030105040**



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 LAMINGTON RIVER --- 02030105050

WMA:	North and South Branch Raritan	08
HUC11:	Lamington River	02030105050

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	281	294	345	348	336	344	336	333	360	300	328
sum	281	294	345	348	336	344	336	333	360	300	328
<i>ground-water:</i> ³											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	2,199	2,048	1,858	1,758	2,128	2,182	1,923	2,129	1,967	1,953	2,014
sum	2,199	2,048	1,858	1,758	2,128	2,182	1,923	2,129	1,967	1,953	2,014
total withdrawals:	2,479	2,342	2,203	2,106	2,464	2,526	2,258	2,462	2,328	2,253	2,342

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	381	541	837	1,045	1,073	1,127	1,068	1,135	1,229	1,079	952
exports ¹¹	1,336	1,290	1,290	1,373	1,671	1,749	1,548	1,934	1,740	1,677	1,561
net	(955)	(749)	(454)	(328)	(598)	(622)	(480)	(799)	(511)	(598)	(609)

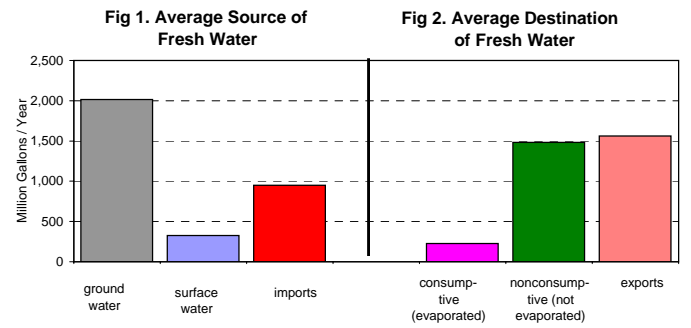


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
<i>potable purveyors</i>											
nonconsumptive	619	592	645	679	785	730	691	553	521	525	634
consumptive	71	66	69	82	88	87	82	68	65	68	75
<i>domestic wells</i>											
nonconsumptive	515	517	523	532	541	550	557	563	572	582	545
consumptive	72	73	74	75	76	77	78	79	81	82	77
<i>industrial & commercial & mining</i>											
nonconsumptive	263	238	312	307	302	305	302	315	356	294	299
consumptive	29	26	35	34	34	34	34	35	40	33	33
<i>agricultural & non-agricultural irrigation</i>											
nonconsumptive	1	7	2	5	3	9	3	5	5	7	5
consumptive	11	59	20	47	24	78	27	41	45	60	41
<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	1,398	1,353	1,483	1,523	1,631	1,593	1,553	1,436	1,453	1,407	1,483
consumptive	183	224	198	238	222	276	221	223	231	242	226
PERCENTAGES:											
nonconsumptive	88.4%	85.8%	88.2%	86.5%	88.0%	85.2%	87.6%	86.5%	86.3%	85.3%	86.8%
consumptive	11.6%	14.2%	11.8%	13.5%	12.0%	14.8%	12.4%	13.5%	13.7%	14.7%	13.2%

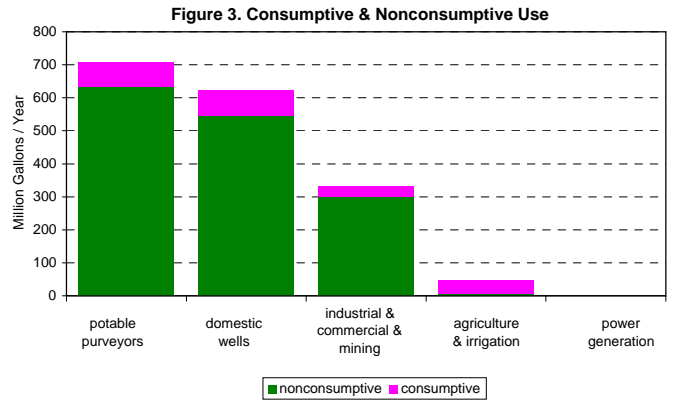


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

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	168	0	166	11	145	50	155	13	634	75
domestic wells	125	0	128	9	159	55	133	12	545	77
industrial & commercial & mining	40	4	73	8	95	11	92	10	299	33
agricultural & non-agricultural irrig.	0	1	1	5	3	29	1	7	5	41
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	333	5	368	33	402	145	380	43	1,483	226

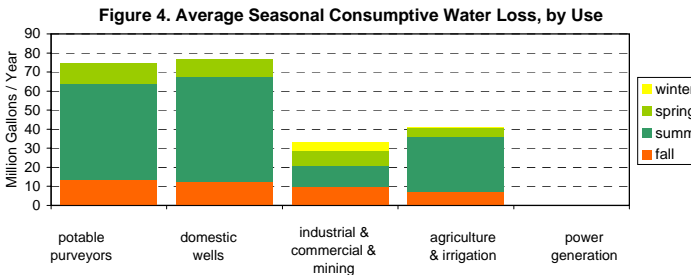


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	357	381	412	468	485	470	574	525	506	521	470
imported to HUC11	232	242	263	301	313	299	357	341	329	333	301
exported from HUC11	44	46	50	54	55	50	66	57	58	57	54

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	545	577	625	716	743	719	865	808	777	798	717
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:	545	577	625	716	743	719	865	808	777	798	717

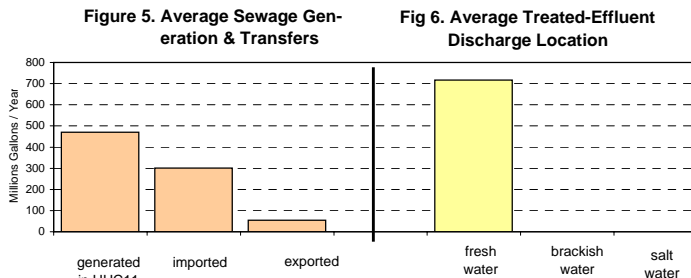


Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	400
ground water	2,947
total	3,347

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

Use Group	MGY
agricultural	475
commercial	0
industrial	463
irrigation	39
mining	0
potable supply	2,370
power generation	0
total	3,347

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	99.3	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	99.3	sq. mi.

(this HUC11 onshore area: 99.3 sq. mi.)

--- Population of this HUC11:

Year	Population	Change
1940	7,339	-
1950	9,427	28.4%
1960	14,401	52.8%
1970	21,783	51.3%
1980	27,381	25.7%
1990	33,205	21.3%
2000	39,290	18.3%
2010	41,561	5.8% est. ¹²
2020	42,460	2.2% est. ¹²
2030	45,472	7.1% est. ¹²

--- Land Use of this HUC11:

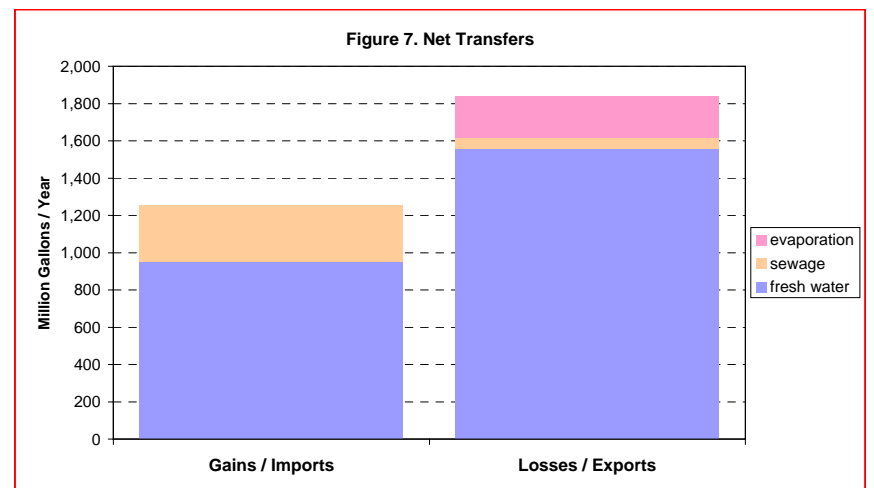
Type	1986	1995	Change
ag.	25.4%	23.1%	-2.3%
barren	0.5%	0.8%	0.3%
forest	44.2%	42.8%	-1.4%
urban	20.3%	23.7%	3.4%
water	0.9%	1.0%	0.0%
wetlands	8.6%	8.6%	-0.1%

--- % of this HUC11 in:

Pinelands:	0.0%
Highlands:	86.8%

Table 10. Upstream and downstream HUC11s (in NJ)

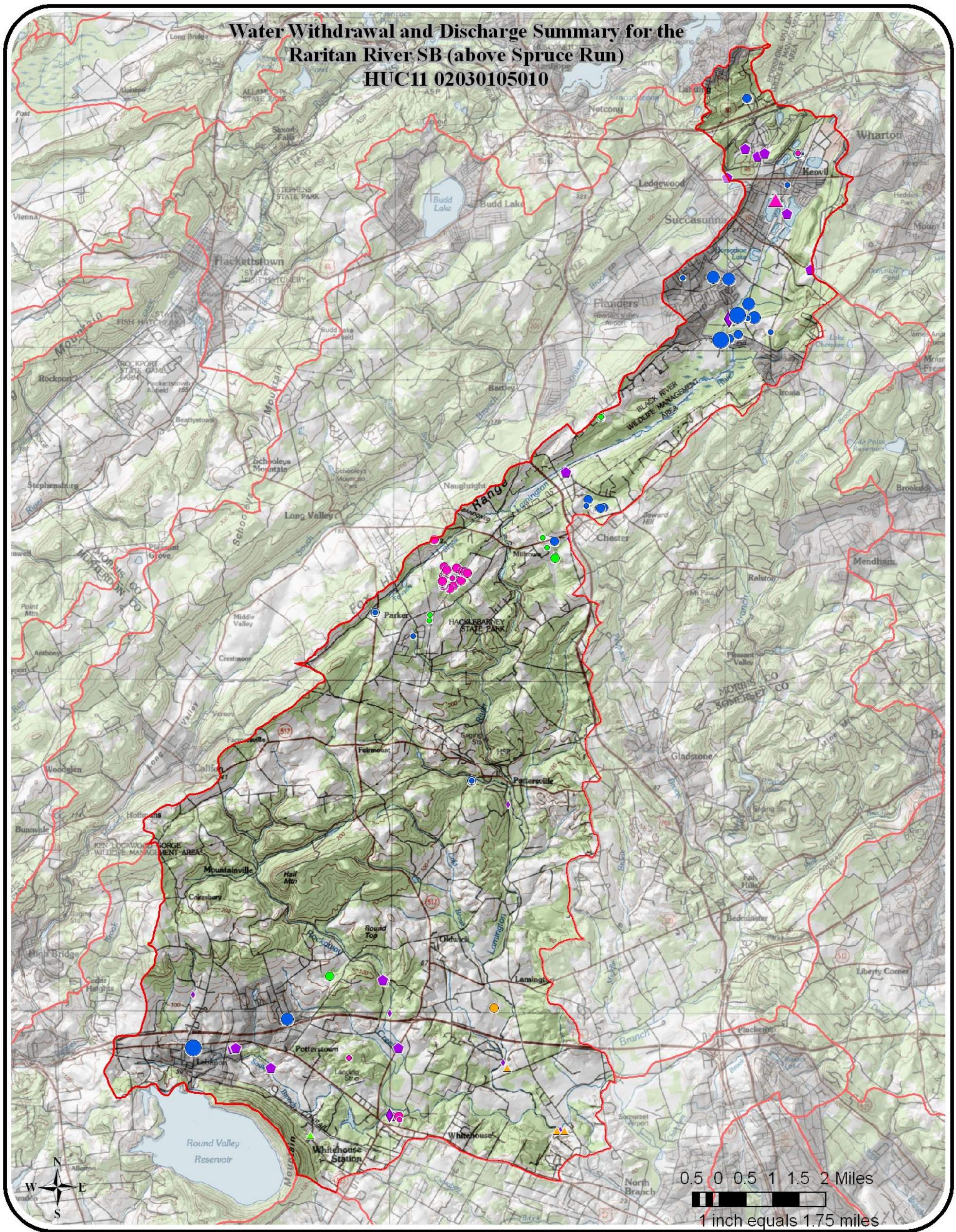
location	#	name
downstream:	02030105070	Raritan River NB (SB to Lamington)
(if any)	--	--
upstream:	--	--
(if any)	--	--



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 Raritan River SB (above Spruce Run) HUC11 02030105010

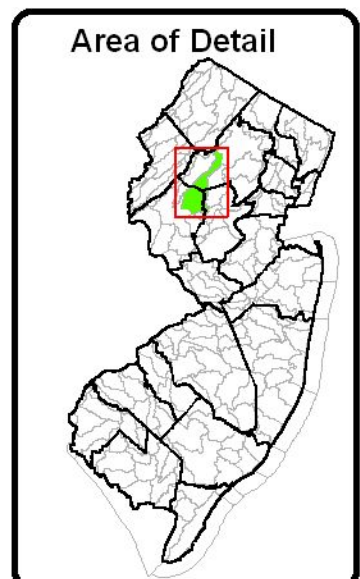


Key for Discharge Data	
1999 Treated Effluent Discharge	
0 - 50 MGY	◆
50 - 100 MGY	◆
100 - 500 MGY	◆
> 500 MGY	◆
Other Permitted Discharge	◆

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 NORTH BRANCH RARITAN RIVER (ABOVE LAMINGTON R) --- 02030105060

WMA:	North and South Branch Raritan	08
HUC11:	North Branch Raritan River (above Lamington)	02030105060

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	3	16	10	13	5	23	11	13	13	30	14
sum	3	16	10	13	5	23	11	13	13	30	14
ground-water:³											
confined	0	0	0	0	0	0	0	0	0	0	0
unconfined	355	372	366	401	432	436	427	434	442	395	406
sum	355	372	366	401	432	436	427	434	442	395	406
total withdrawals:	358	388	376	414	437	459	438	447	454	425	420

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	384	344	311	335	345	362	335	336	344	359	345
exports ¹¹	96	106	108	129	150	148	145	147	148	114	129
net	288	238	203	206	195	214	190	190	195	245	216

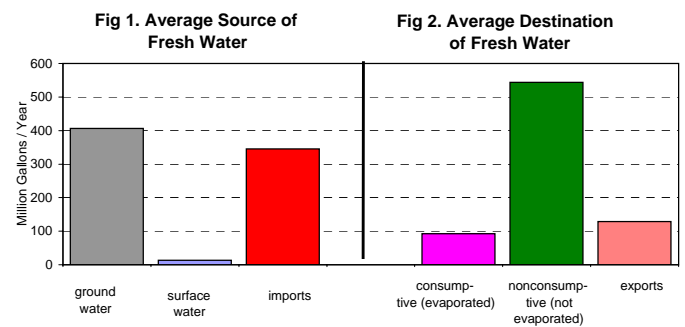


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	329	289	259	273	290	302	276	278	283	295	287
consumptive	30	30	26	36	32	33	30	31	34	37	32
domestic wells											
nonconsumptive	242	243	245	248	251	255	258	260	264	268	253
consumptive	34	34	35	35	35	36	36	37	37	38	36
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	3	1	3	2	5	3	3	3	3	3
consumptive	11	27	13	26	21	43	26	28	29	28	25
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	571	534	506	523	543	562	536	542	550	566	543
consumptive	75	91	73	97	88	112	92	96	100	103	93
PERCENTAGES:											
nonconsumptive	88.4%	85.4%	87.3%	84.4%	86.1%	83.4%	85.3%	85.0%	84.6%	84.6%	85.4%
consumptive	11.6%	14.6%	12.7%	15.6%	13.9%	16.6%	14.7%	15.0%	15.4%	15.4%	14.6%

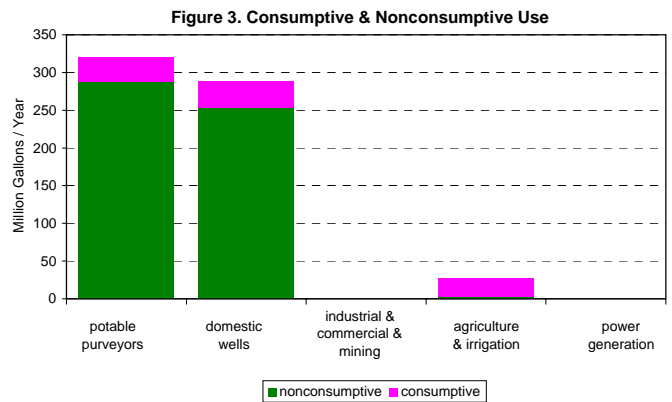


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

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	81	0	75	5	62	21	69	6	287	32
domestic wells	58	0	60	4	74	26	62	6	253	36
industrial & commercial & mining	0	0	0	0	0	0	0	0	0	0
agricultural & non-agricultural irrig.	0	0	1	5	2	16	0	4	3	25
power generation	0	0	0	0	0	0	0	0	0	0
SUM:	139	0	135	14	137	63	132	16	543	93

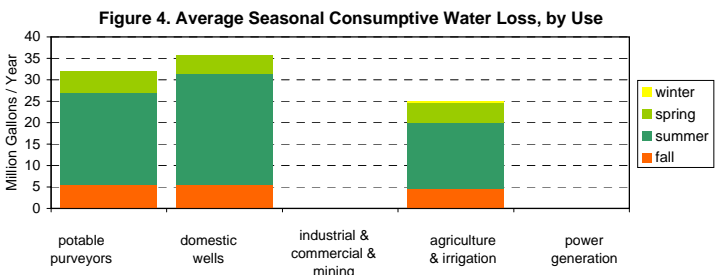


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	467	535	531	572	591	583	668	604	633	632	582
imported to HUC11	101	127	132	149	175	169	205	196	200	202	166
exported from HUC11	1	2	5	5	5	4	5	4	4	4	4

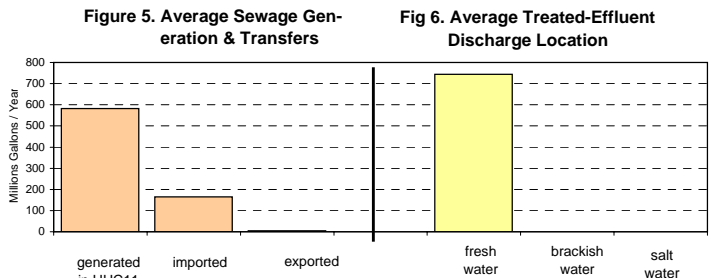


Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges⁹ in the HUC11 (millions of gallons)

destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
fresh water	567	661	659	716	761	748	868	796	829	830	743
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:	567	661	659	716	761	748	868	796	829	830	743

Table 7. 1999 Water Allocations¹⁰ in HUC11 by Water Source

Water Source	MGY
surface water	118
ground water	196
total	314

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

Use Group	MGY
agricultural	37
commercial	0
industrial	0
irrigation	150
mining	0
potable supply	127
power generation	0
total	314

Table 9. HUC11 Descriptive Statistics

--- **Area:**

in this HUC11 only	64.0	sq. mi.
upstream HUC11s	0.0	sq. mi.
total watershed	64.0	sq. mi.

(this HUC11 onshore area: 64.0 sq. mi.)

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

Year	Population	Change
1940	7,865	-
1950	9,592	22.0%
1960	13,555	41.3%
1970	18,804	38.7%
1980	21,474	14.2%
1990	24,835	15.7%
2000	29,087	17.1%
2010	30,635	5.3% est. ¹²
2020	31,446	2.6% est. ¹²
2030	33,584	6.8% est. ¹²

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

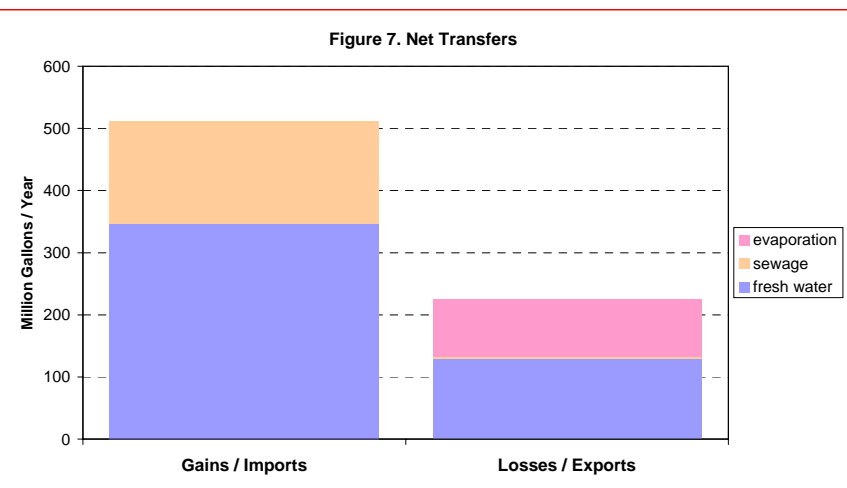
Type	Year		Change
	1986	1995	
ag.	21.2%	19.8%	-1.4%
barren	0.3%	0.6%	0.4%
forest	48.9%	45.5%	-3.5%
urban	23.5%	28.0%	4.5%
water	0.7%	0.7%	0.0%
wetlands	5.4%	5.4%	-0.1%

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

Pinelands:	0.0%
Highlands:	100.0%

Table 10. Upstream and downstream HUC11s (in NJ)

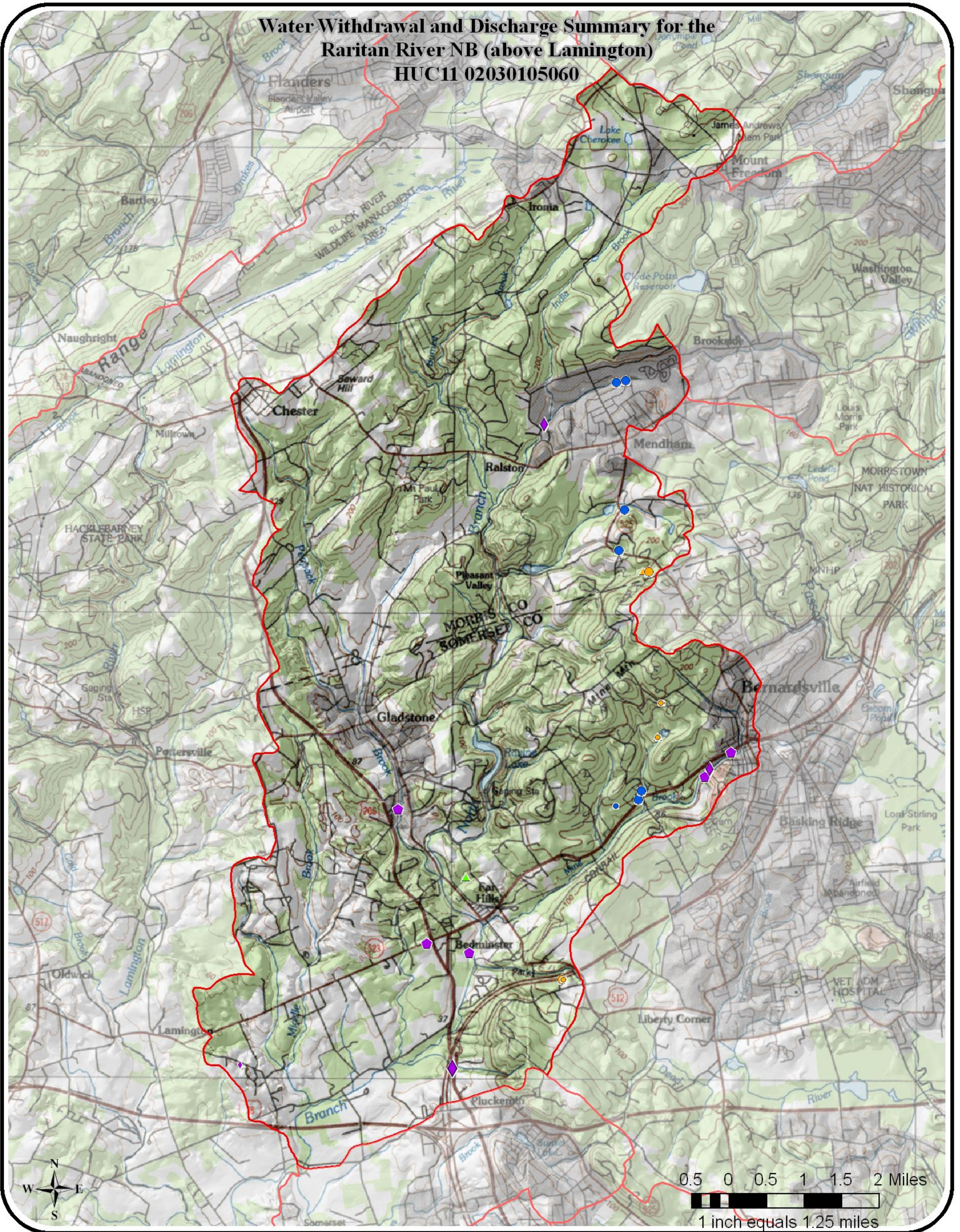
location	#	name
downstream:	02030105070	Raritan River NB (SB to Lamington)
(if any)	--	--
upstream:	--	--
(if any)	--	--
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NOTES:

- 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.

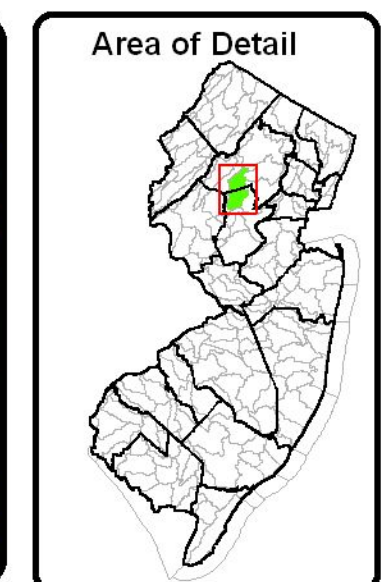
Water Withdrawal and Discharge Summary for the Raritan River NB (above Lamington) HUC11 02030105060



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 NORTH BRANCH RARITAN RIVER (SOUTH BRANCH TO LAMINGTON R.) --- 02030105070

WMA:	North and South Branch Raritan	08
HUC11:	North Branch Raritan River (South Branch to Lamington)	02030105070

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	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	285	283	293	295	297	275	261	293	312	319	291
sum	285	283	293	295	297	275	261	293	312	319	291
total withdrawals:	285	283	293	295	297	275	261	293	312	319	291

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	1,095	1,075	1,021	1,098	1,223	1,230	1,185	1,204	1,220	1,250	1,160
exports ¹¹	390	385	396	415	425	397	374	381	388	391	394
net	704	690	626	682	797	833	812	823	832	858	766

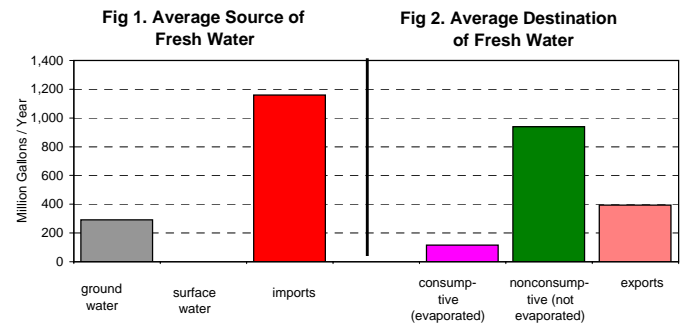


Table 3. Nonconsumptive⁴ & Consumptive⁵ Water Use⁶ in the HUC11, by Use Type (millions of gallons)

Water use	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
potable purveyors											
nonconsumptive	704	686	636	677	786	796	764	789	801	826	746
consumptive	74	76	69	87	92	95	88	96	101	106	88
domestic wells											
nonconsumptive	183	184	185	188	190	191	192	193	195	197	190
consumptive	26	26	26	26	27	27	27	27	27	28	27
industrial & commercial & mining											
nonconsumptive	0	0	0	0	0	0	1	9	10	11	3
consumptive	0	0	0	0	0	0	0	1	1	1	0
agricultural & non-agricultural irrigation											
nonconsumptive	0	0	0	0	0	0	0	0	0	0	0
consumptive	1	1	2	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	888	870	822	865	976	987	957	992	1,005	1,034	939
consumptive	101	103	97	113	118	121	115	124	130	135	116
PERCENTAGES:											
nonconsumptive	89.8%	89.4%	89.4%	88.4%	89.2%	89.0%	89.3%	88.9%	88.6%	88.4%	89.0%
consumptive	10.2%	10.6%	10.6%	11.6%	10.8%	11.0%	10.7%	11.1%	11.4%	11.6%	11.0%

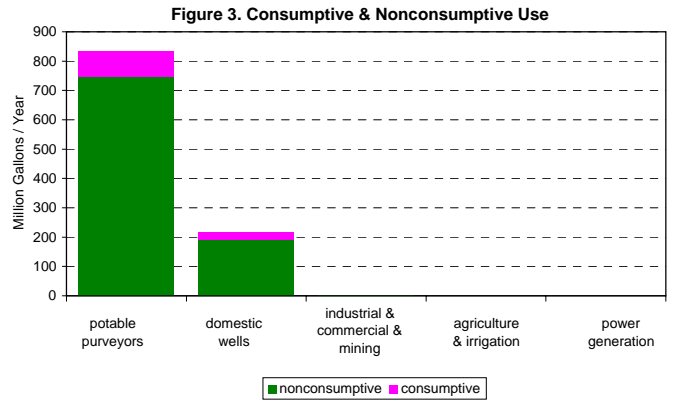


Table 4. Average Seasonal⁷ Use - Nonconsumptive⁴ & Consumptive⁵ (millions of gallons)

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	200	0	196	13	174	60	179	15	748	88
domestic wells	44	0	45	3	55	19	46	4	190	27
industrial & commercial & mining	1	0	1	0	1	0	1	0	3	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:	244	0	241	16	230	80	226	20	941	116

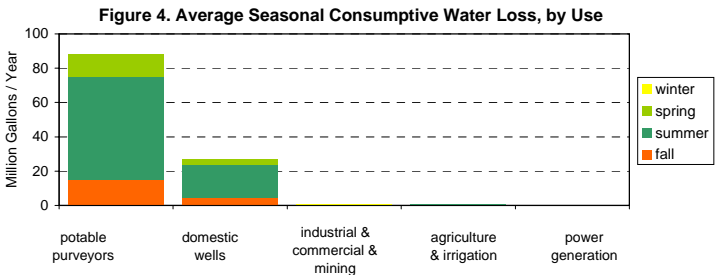


Table 5. Sewage Generation & Transfers⁸ in the HUC11 (millions of gallons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	average
generated in HUC11	1,139	1,185	1,152	1,256	1,284	1,184	1,554	1,352	1,285	1,091	1,248
imported to HUC11	0	0	0	0	0	0	0	0	0	0	0
exported from HUC11	1,139	1,185	1,152	1,256	1,284	1,184	1,554	1,352	1,285	1,091	1,248

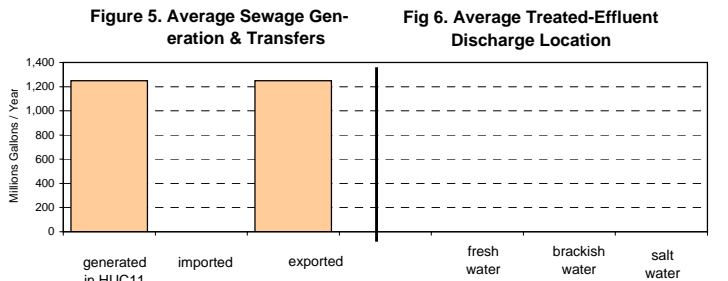


Table 6. Destination of Treated Effluent (Reclaimed-Water) Discharges⁹ in the HUC11 (millions of gallons)

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	0
ground water	152
total	152

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

Use Group	MGY
agricultural	0
commercial	0
industrial	37
irrigation	0
mining	0
potable supply	114
power generation	0
total	152

Table 9. HUC11 Descriptive Statistics

--- Area:

in this HUC11 only	25.5	sq. mi.
upstream HUC11s	163.3	sq. mi.
total watershed	188.8	sq. mi.

(this HUC11 onshore area: 25.5 sq. mi.)

--- Population of this HUC11:

Year	Population	Change
1940	2,568	-
1950	3,875	50.9%
1960	6,761	74.5%
1970	11,243	66.3%
1980	12,219	8.7%
1990	15,155	24.0%
2000	19,719	30.1%
2010	20,803	5.5% est. ¹²
2020	21,597	3.8% est. ¹²
2030	22,372	3.6% est. ¹²

--- Land Use of this HUC11:

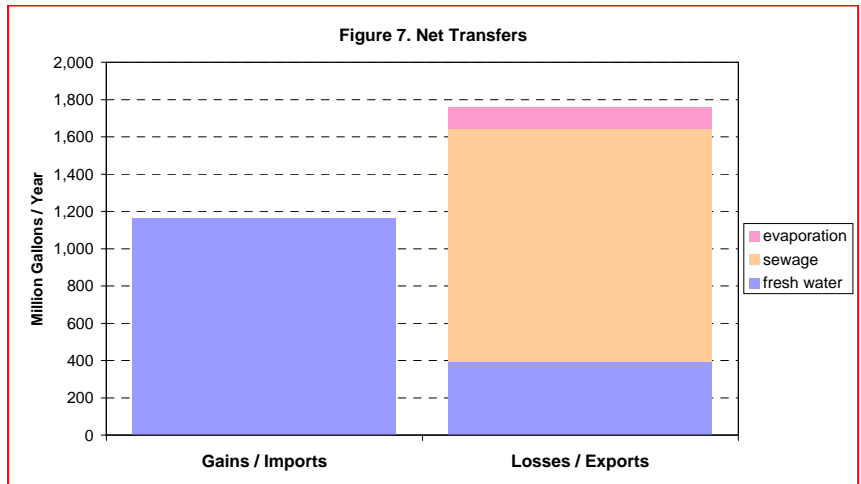
Type	Year		Change
	1986	1995	
ag.	19.4%	14.7%	-4.7%
barren	1.8%	1.0%	-0.8%
forest	27.3%	26.2%	-1.1%
urban	41.0%	47.7%	6.7%
water	0.8%	0.9%	0.0%
wetlands	9.6%	9.4%	-0.2%

--- % of this HUC11 in:

Pinelands:	0.0%
Highlands:	14.0%

Table 10. Upstream and downstream HUC11s (in NJ)

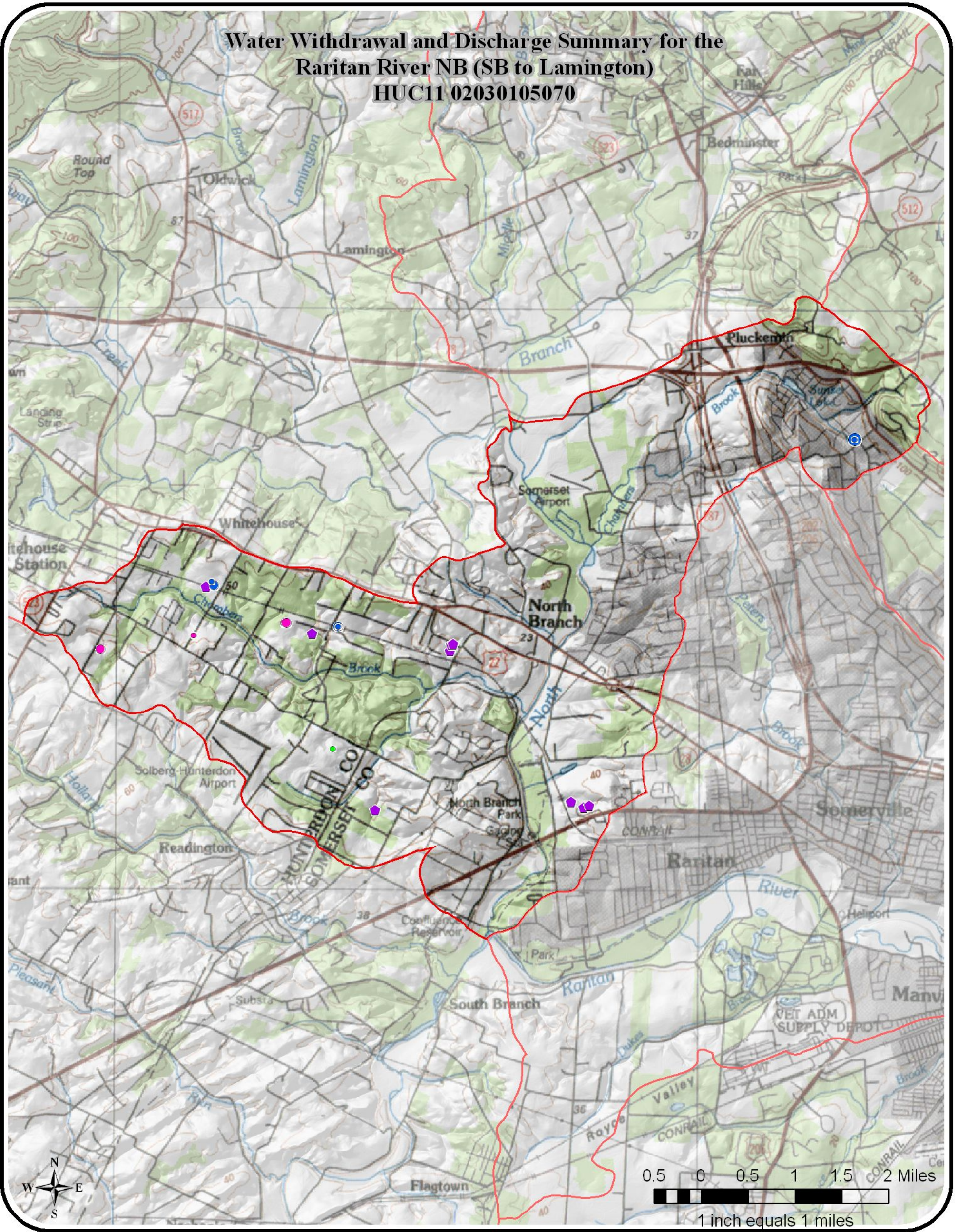
location	#	name
downstream:	02030105080	Raritan River Lower (Millstone to NB/SB)
(if any)		
upstream:	02030105050	Lamington River
(if any)	02030105060	Raritan River NB (above Lamington)
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NOTES:

- 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 Raritan River NB (SB to Lamington) HUC11 02030105070



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		
Source		1999 Withdrawal
GW Confined	□	No 1999 Use
GW Unconfined	○	1 - 50 MGY
SW	△	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

