Jones River Watershed Association

781-585-2322 • PO BOX 73, KINGSTON, MA 02364 • WWW.JONESRIVER.ORG

April 6, 2012

Ms. Kathleen Baskin
Director of Water Policy
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, 9th floor
Boston, MA 02114

RE: Comment: Jones River relationship to and comments on SWMI:
Including Safe Yield, Biological Categories and Stream Flow Criteria

Dear Ms. Baskin,

The Jones River Watershed Association (JRWA) of Kingston Massachusetts has been working to protect and restore the natural resources and ecosystem connectivity within the South Coastal basin and related Cape Cod Bay ecosystem since 1985. Founders of JRWA were active in efforts to endorse and pass the Water Management Act in the early 1980's because of the promise that the WMA would bring improved water resources management, restored lake levels and native habitats, and reconnect the Jones River to its headwater Silver Lake. The prevalent interpretation of the time was that Registrations would be used to establish existing use, and that in ten, or at the most twenty years, permits and permit conditions would assure that natural water resources would be managed for the whole environment, for native and migrating aquatic species and human use, and that these uses would be balanced for the welfare of all.

Instead, over the past twenty-five years, the state has allowed water supply managers to cement practices that are destructive of environmental productivity, in much the same way that dams were cemented in place as obstructions to fish passage a hundred years ago. The SWMI Framework presented in February 2012, if implemented, will virtually assure the continued loss of aquatic resources as it seeks to make permanent poorly managed water supply systems that have chronic, excessive and cumulatively degrading influence on the natural environment of the Commonwealth. Why?

We believe in the good intentions of the scores of state agency staff, environmental organizations and the many others who have invested considerable time and energy into the mind-wrenching task of analyzing the systems and devising the methods to assess stream flows in order to shape the SWMI Framework. While we admire this dedication, and we are sorry to criticize the draft outcome, we believe the investment of time and resources must be expanded before the Framework will do what we all need it to do: ensure a reliable method for assigning water use privileges equitably and economically for all Commonwealth residents while staying focused on restoring and sustaining thriving natural environments with their native and migrating species intact.

**Natural Resource Management Plans**

This simple useful tool of the WMA has not been shaped or required. Section 7 of the WMA (G.L. 21G) allows DEP to refer and correlate permits to 'water resource management plans' either adopted by cities and towns or the WRC. This seems logical as a way of assuring that the plans address the whole of the waters "resources", especially if the plans are designed to enhance river restoration and provide sustainable supplies. Although the 1989 Rivers Policy of the Commonwealth, the WRC Basin planning, and the following Watershed Initiative were on track to develop the framework and design for such Water Resource Management Plans, these initiatives have been left in the dust. The USFWS was making great strides in 1999 to develop a New England Flow Policy protective of "indigenous aquatic life". Now, SWMI is advancing a system of identifying rivers and streams with existing flow alterations, it seems, in an effort to identify specified biological categories based on an inventory of fish resources—and then to stick them there. While EEA also assigns a program of mitigation options for permittees desiring additional water supply from these rivers, it appears that the system is intended more to limit the investment to be required of the applicant rather than to assure that a restoration program for degraded streams is implemented. This is just too complicated, and will ultimately lead to more conflict. It is relatively simple to go look at the condition of a river, probe its species record, and begin adaptive steps to bring it back to health.

JRWA knows that the Jones River needs a widely accepted and adopted Water Resource Restoration and Management Plan. Such a plan would be educational, instructive and informative. It would describe the value and unique characteristics of the watershed and river system and highlight the importance of its integrity to the extended Gulf of Maine and global ecosystem. The South Coastal Basin Watershed Action Plan provides a good material for this, and Chapter 5 addresses the Jones River[1]. Even though this plan does not address a framework for water allocation, it can be used to further develop a framework for restoration in sub-basins within the south coastal area. However, this Action Plan is now six years old and the information deserves to be updated. A full Water Resources Management Plan would include all the landscape needs and influences, the population and economic demands on the watershed, as well as the demands of the indigenous and migrating species. It would evaluate and balance the economic value of water-dependant ecological resources that are currently overlooked. Large water users should be required to contribute to recognized and accepted restoration program objectives and goals. Mitigation of the negative impact of withdrawals cannot be a multiple choice, neither can minimization of negative impacts by users be expected without clear goals and requirements. Many towns now operate their water supplies through enterprise funds. Pipes, pumps, storage tanks and wellhead protection should not be the only investment by water companies. The removal and transport of water away from the native environment is taking and transferring value. That value belongs to the whole environment, and compensation should be for the environment in order to ensure sustainability of the resource going forward. This is not strictly an 'environmentalist' approach. Long term sustainability of high quality water supplies and ecological function are essential to every citizen and industry in the Commonwealth.

[1] South Coastal Watershed Action Plan

**Registrations as Baseline**

Perpetuating environmental degradation through interminable registrations by establishing their right in the "Baseline" framework is contrary to the basis for the WMA and renders everything subject to it futile. This is an irresponsible next step in the decades long effort to proscribe fairness in water allocation because it devastates the rational for the WMA by making preservation and restoration of a river's integrity impossible; and it sanctifies that misappropriation with the word "base-line" (i.e. the line where the river used to flow). The point of stream flow criteria, in keeping with efforts from the past, like "Aquatic Base flow" and "Minimal Instream flow" is to maintain a safe level of flow in all our rivers for fish to swim and other aquatic species to at least survive. Better, would be a system that ensured that the fish stocks of the Commonwealth thrived, and in that way assure that the future human needs will be met when it comes to demands for water, whether for drinking, fishing, agriculture, recreation and public safety.

In the case of the Jones River, DEP is prepared to establish a "Baseline" based on the dominant Registration to the City of Brockton at 11.11MGD, from the Jones River headwater at Silver Lake. The resident communities in the Jones River basin—Pembroke, Duxbury and Kingston hold registrations under 3MGD. Setting them aside in this discussion, we offer the following to point out the absurdity of even considering establishing Brockton's registration as its baseline use and withdrawal from the Jones River.

<u>The Brockton Example</u>

In December 1987 Brockton submitted a registration statement to DEQE that was flawed. The department reviewer recognized that Brockton was commingling two river basins and required the City to re-submit the registration statements.

> "*Your registration is deficient in that the withdrawals you report appear to be in two (2) separate river basins. Please separate them out and recalculate your total withdrawals for each river basin. A withdrawal point is the point at which you withdraw water from the natural surface or groundwater source, not necessarily the point where you have a filtration plant or pump station.*" [2]

Despite this directive, in January 1989, the City resubmitted its registration removing only the Hubbard Av well from its Forms A, C and D, and claimed all water pumped was from "Silver Lake only". However, we know this was not true. During the registration period from 1981-1986, Brockton commingled water from the Taunton River Basin and the South Coastal basin, from four distinct sources—one of which (Pine Brook) was never admitted. To this day Silver Lake and Jones River water quality suffers from diversions into it from shallow recreational ponds. Monponsett Pond is in the Taunton River Basin, and Furnace Pond is in the South Coastal, 21a/North River sub-basin. The water usage for the period follows:

[2] DEQE letter to Maynard Spekin, DPW Water Division, Brockton. December 14, 1988 by Cynthia Dyballa

| year | Total in MG registered[3] | Monponsett Pond[4] | Furnace Pond | Pine Brook[5] (est. JRWA) | Silver Lake only[6] |
|---|---|---|---|---|---|
| 1981 | 4515.68 | 1,274,661,000 | 377,680,000 | | |
| 1982 | 3884.73 | 2,904,525,000 | 914,018,500 | 360,000,000 | |
| 1983 | 3933.22 | 780,676,000 | 682,130,000 | | |
| 1984 | 4108.34 | 1,731,287,000 | 544,739,000 | | |
| 1985 | 3834.54** | 752,964,000 | 324,575,000 | | |
| Total | 20276.51 | 7,444,113,000 | 2,842,524,500 | 72,000,000 | |
| Daily | 11.11 | 4,078,966.03 | 1,557,547.67 | 197,260.27 | 5,276,223.03 |

**these values were estimated due to an inoperable meter

Brockton's own figures show that the very most that it was taking from Silver Lake alone during the registration period averaged 5.276 MGD, and at this rate it was far exceeding the natural capacity of the lake, which was drawn down 27 feet between 1981 and 1983. It is beyond our ability to understand why and how DEP authorized an amount nearly double the real figure. This is also why we cannot allow this deception and abuse to continue today through the contrived and permanent application of a new WMA policy: BASELINE.

This whole concept shatters our faith in the SWMI process. It is just irresponsible for EEA/DEP to be tasked with finally addressing the Safe Yield conundrum and to subvert it with a policy that prevents the very application of restraint based on ecosystem and natural limits. This is not unlike pretending money exists where it doesn't, and doling out generous, albeit, wasteful shares, only to find later that the entire system is in collapse. Surprise!

Really there can be no surprise. And there can be no legitimate claim by any water supplier, especially those in the early 1980's when water use was up over 125GPPPD and leaky pipes and gross waste was the signature of virtually every water system. We have learned a great deal since then: that conservation pays huge dividends in water and economic savings that are real; that millions of gallons of water a day are lost through leaks; that we can manage outdoor use by paying attention and planting native grasses and drought tolerant species; that fish need water too—more than we do; that water quality is an urgent issue; that the climate is changing extremely fast; and that it is better to be truthful and flexible—i.e. adaptive, based on knowledge and planning for the future. We are working in a field where natural limits are real and cannot be minted, and its time to think and act like this is true.

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[3] These figures from Brockton revised Registration Statement Form D

[4] Figures for Monponsett Pond & Furnace Pond from Brockton figures and DEP file

[5] JRWA has pictures of the Pine Brook diversion start date in October 1981 and increasing to at least 2MGD in April 1982. The diversion in '82 was on for at least six months. Shown is a low estimate of the volume transferred into the lake from Pine Brook, a mile east.

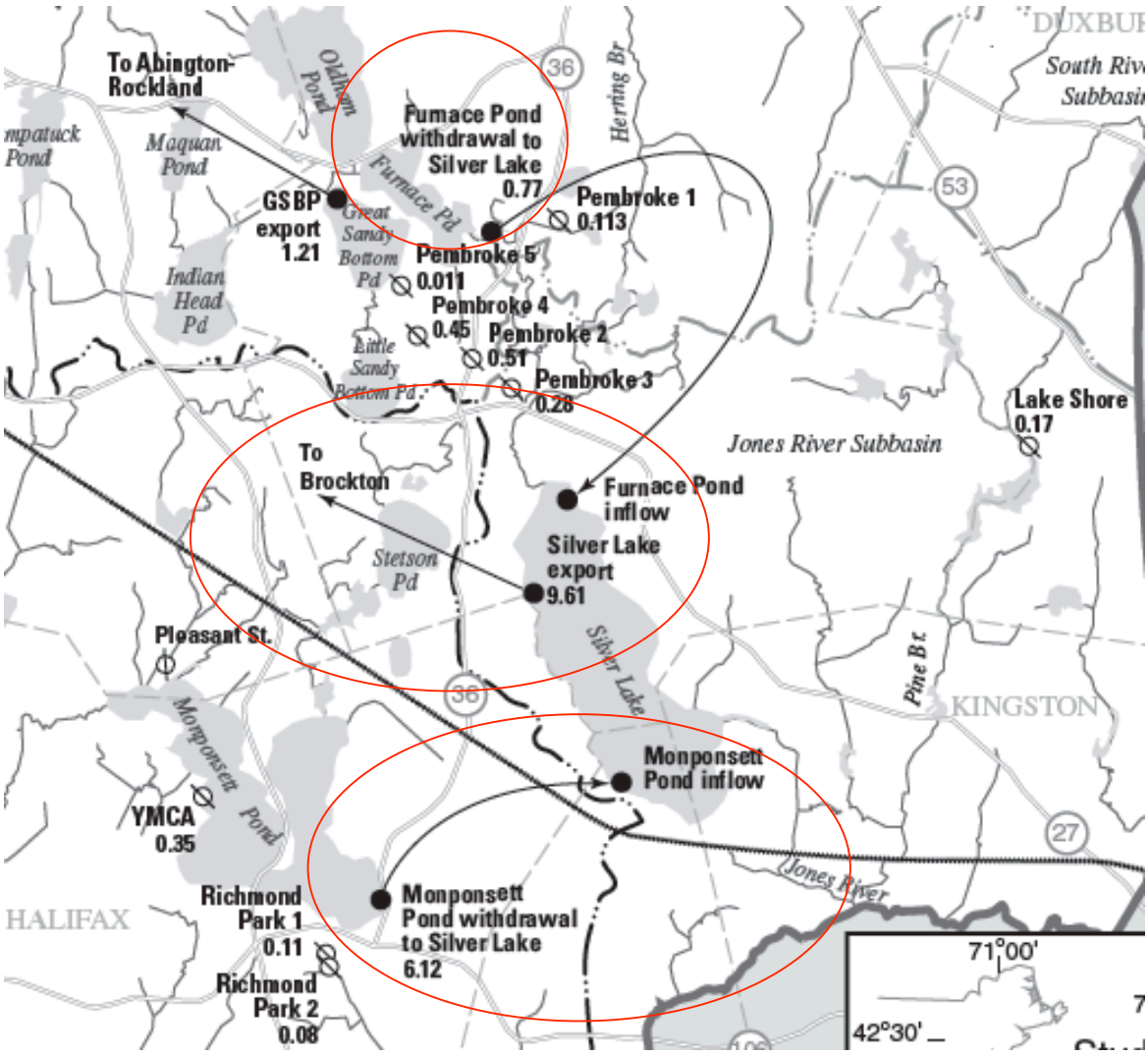
[6] Amount actually used and eligible for registration, even though record abuse and drawdown

Above, April 1982: A second civil-defense pipe is added to convey water from Pine Brook, to the emergency diversion started in October 1981. (truck, tires, pipes in lakebed.)

Further support for our position can be found in the USGS Study-Sandy Bottom Pond SIR2004_5269 Table 1 at p. 7, which shows the following with a clarifying map on p. 3, a portion of which is reproduced below.

| | | Avg. 1998-2002 | Avg. 2002 |
|---|---|---|---|
| Brockton | | | |
| Silver Lake | SWE | 9.92 | 9.61 |
| Furnace Pond withdrawal to Silver Lake | SWW | 1.38 | .77 |
| Monponsett Pond withdrawal to Silver Lake | SWW | 5.27 | 6.12 |

In the table USGS shows the withdrawals between 1998 and 2002. The combined sources provided the 9.92MG daily average from Silver Lake between 1998 and 2002 of which a total of 6.65 was from the diversions. The average withdrawn in 2002 was 9.61, where 6.89MGD was provided by the diversions.



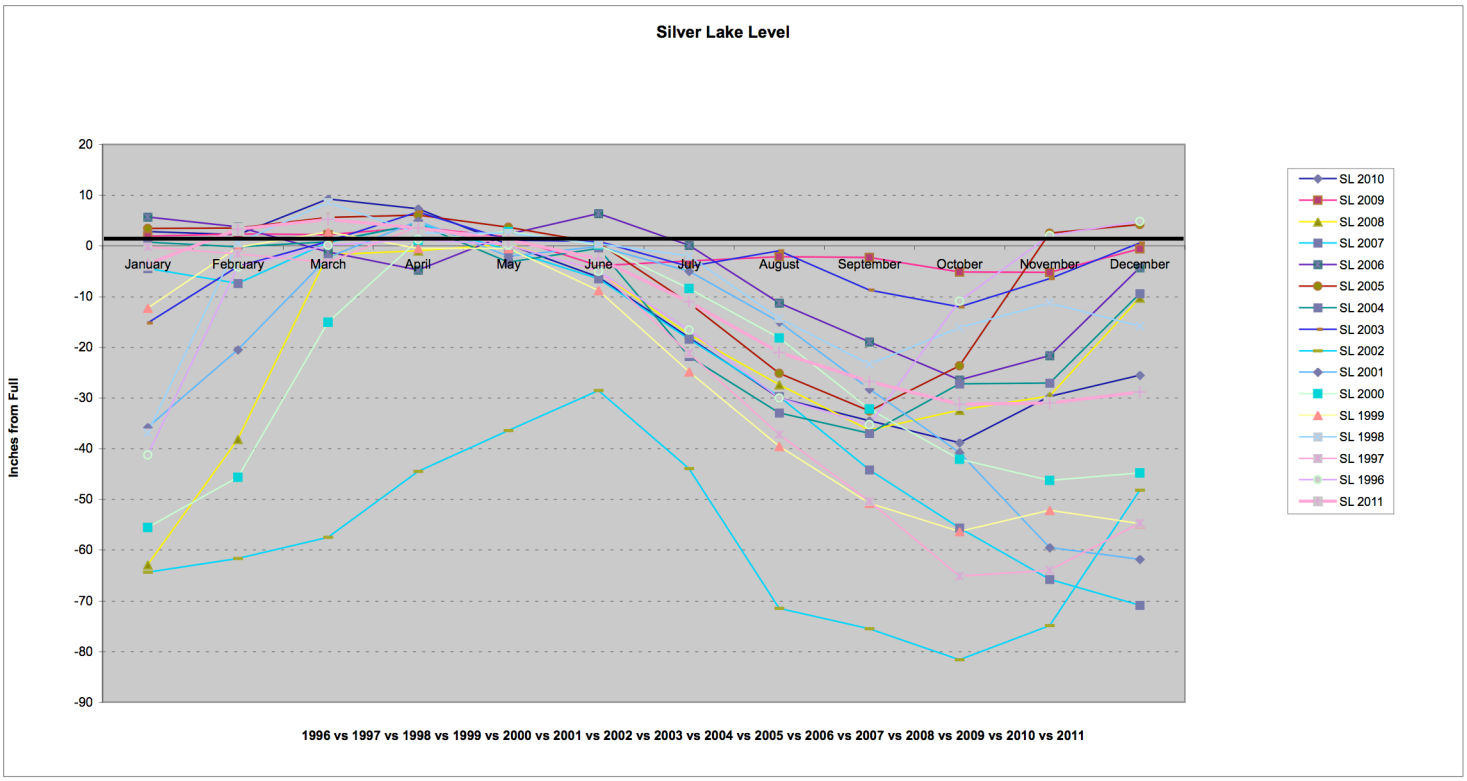

Below: this "recent" record serves to underscore what was known in 1900, soon after Brockton won the right from the state Legislature to obtain water from the Great Pond and valued fishing and recreation area, Silver Lake. See the historic remarks from Howards & Kaynor in 1971, below.[7]

In 1900, the lake's 5.4 b.g. capacity and safe yield of 4.3 m.g.d. were thought adequate for all needs, and Brockton completed construction of all necessary intake works and transmission facilities in 1905. However, on May 4 of that year, the Massachusetts Board of Health, realizing the implications of large-scale water supply operations at Silver Lake, issued rules prohibiting recreational use of the lake (including boating and fishing). Since Silver Lake had developed as a resort facility, this was a bitter pill for abutters and vacationers to swallow, and became an important part of the opposition argument half a century later.

[7] Irving Howards & Edward R. Kaynor, 1971: Institutional Patterns in Evolving Regional Programs for Water Resource Management. See also Roger E. Kasperson, 1969: Political Behavior and the Decision-Making Process in the Allocation of Water Resources between Recreational and Municipal Use

**Compounding the Error with Firm Yield**

DEP asked the Brockton City engineers to determine the so-called "Firm Yield" of Silver Lake. This concerns us because the operating definition of this concept (i.e. to simplify: what is the average volume of water that can be pumped during a drought before the system runs out of water?) has become something of an operations tool. If the "system" were man-made, and stood alone without a dependent ecosystem, this calculation would be useful information. However, when the concept of "firm yield" is required to establish the "safe yield" of a "reservoir" such as Silver Lake, environmental abuse is certain to result, and it has. This is because the concept established a false "bank roll" for a community to plan its development and govern water use by its residents. One only has to look at the so-called "drought management plan" for the City of Brockton to understand this. Brockton considers that it has an "operating band" in Silver Lake to the depth of its intake structure. Based on this, it developed a "firm yield" of 10.4 MGD for Silver Lake. This firm yield also relies on the diversions described above,[8] and NO requirement to contribute flow to the Jones River. However, Brockton now has the capability, and a contract, for an additional Taunton River Basin source from the Aquaria desalinization plant. Yet despite an actual contract for taking the water from Aquaria, Brockton does not, and instead is content to draw Silver Lake down, sacrificing lake species and eliminating discharge to Jones River. As presented the SWMI Framework encourages Brockton, and other suppliers, to seek and guard multiple allocations like this rather than returning water to where it is needed.




[8] Except for Pine Brook: Brockton's request for an Interbasin Transfer Act Permit was ultimately denied by the WRC in 1991.

The previous chart, from the Brockton monthly log, shows Silver lake levels from 1996-2011, where the black line is the level of Forge Pond dam: over this line is when Silver Lake contributes flow to the Jones River, and under the black line shows levels of drawdown in 10 inch increments to 84 inches in 2002, or seven feet down. [In 1982 the lake was drawn down 17 feet, at a time when the City was taking a max of 21.21MGD—water pumping meters were not calibrated, and considerable leaks were perforating the distribution system. Yet this level of consumption was during the "registration period" and is part of the calculation for proposed "baseline" for SWMI.]

Brockton's 2009 "Comprehensive Water Management Plan"[9] demonstrates the delusions and mental obstruction created when a water supplier is allowed to assume that a natural water body such as Silver Lake, which as the headwater of Jones River and represents almost 20% of the watershed, is not expected, required, or allowed, to flow.

In this CWMP Brockton dismisses modification of its withdrawal to accommodate flow to the Jones River. Brockton views following even moderate recommendations (GZA 2003) as impossible. Yet it is only impossible because Brockton is allowed to dismiss an alternative source (Aquaria) and is not required to protect the water quality of the lake. Furthermore, they are allowed to divert the 303d impaired waters of Monponsett and Furnace Ponds into the Class A waters of Silver Lake. Although this is a clear violation of water quality standards, water management standards, any definition of 'environmental protection', and common sense, DEP apparently considers it acceptable since it would be perpetuated under the current SWMI proposal. In sum, the Firm Yield, Safe Yield and Baseline strategies of SWMI will further institutionalize water resource abuse and lead to chronic degradation of the Commonwealth's natural resource base.

**Streamflow**

Masterson, in the 2005 USGS Plymouth-Carver Aquifer Report states on p 26:

> *Streamflows were depleted in response to simulated increases in groundwater withdrawals over time. The regional change in total streamflow from predevelopment to future conditions is about 11 Mgal/d or 16 ft3/s (table 2). This decrease represents only a 5-percent reduction in total streamflow over time;* ***however, the local effect of increased pumping can be much greater on individual streams. An analysis of changes in model-calculated streamflow over time for individual streams shows that the greatest decrease in streamflow will be in the Jones River in Kingston (fig. 1, table 3****). The streamflow in the Jones River, decreased by about 4 ft3/s from predevelopment to 1985* ***conditions as a result of surface-water withdrawals from Silver Lake for the City of Brockton*** *public water supply. Silver Lake is the headwater for the Jones River, and the model-calculated predevelopment flow from the Silver Lake outlet was about 8.4*

[9] City of Brockton, Massachusetts Comprehensive Water Management Plan November 2009. (CDM) This CWMP plan was first required by DEQE in 1991 as a condition of its Administrative Consent Order which Brockton signed to discharge the Declaration of Water Supply Emergency that had been in place since 1986. The CWMP was again required in the Brockton's 2005 Taunton River Basin Permit. It has yet to be approved by DEP.

> *ft3/s (table 3). As simulated withdrawals from the lake increased from predevelopment conditions to 1985, the model-calculated lake level declined about 0.4 ft (fig. 17A), and the flow at the lake outlet decreased by about 3 ft3/s,* ***indicating that relatively small changes in the lake level can have large effects on streamflow at the lake outlet.*** [emphasis supplied]

One must conclude from USGS (Masterson, 2005), that the firm yield and safe yield of Silver Lake should be calculated based on a maximum drawdown of Silver Lake of no more than 18 INCHES—not seventeen feet as Brockton's engineers have suggested in order to rationalize the water supply practices of the City of Brockton. There are simple solutions to these specific issues in the Jones River. With a limited drawdown level, a new plumbing regime for the diversions (i.e. to the Water Filtration Plant, not into Silver Lake) and optimal use of the additional supplies (Avon Reservoir and Aquaria), Brockton could attain a water management scheme that respects both its need for supply and the essential demands of the natural environment. These simple solutions would actually *improve* Brockton's water quality and long term reliability of water supply while at the same time restoring critical flow to the Jones River. Historic and proposed (SWMI) policies are the only thing standing in the way of making improvements across the board.

In the SWMI Framework Appendices of February 3, 2012, p.10, Staff describes the reasoning and methodology to calculate the "Total Recommended Potentially Allocatable Water for Basin 21b", where 21b is divided into the "North section", which is the Jones River and Duxbury Bay area, and the "South section" which is south of the Kingston/Plymouth Town line. Here Staff concludes that 13.8MGD is available in the North section, which totals 49.45sq.mi. The Jones River drainage area, including Silver Lake is reported to be 21.4 sq.mi. of that total. In 21b, North, the "potentially allocatable" safe yield is averaged to be 0.28MGD/sq.mi., based on 25% of the monthly averages over a year. In our way of thinking about streamflow, and in keeping with many of the comments we have read from collaborating river groups, averaging mean monthly flows as the basis for the allocation will lead to over-allocation, and damage to the aquatic species and habitats of various river systems, including 21b, North (and the Jones River). In the following table, we demonstrate the difference, where the four driest months of July to October would exceed the recommended allowance cumulatively, or by 0.25MGD/sq mi., about an extra month's worth of water. (See the below chart.)

However, the larger issue for us is **where** in the watershed the allocation is taken. It is unreasonable and illogical to suggest that because the Jones River fresh watershed is 21.4 sq miles, that all of the allocatable water (0.28 x 21.4) can come, in one gulp, from its headwater source. We all now understand that allocation has to leave water in the basin and in the river as flow sufficient to sustain fluvial fish. Taking so much from the headwater as to decapitate the source is inherently damaging to the ecosystem and everything EEA is attempting to protect. The location of the point of withdrawal is a critical component of the entire discussion.

Revision of SWMI Table

Jones River Estimated Safe Yield (Drainage Area 21.4 Square miles)

| | | **Potentially Allocatable cfs** | **Potentially Allocatable MGD** | **Potentially Allocatable MGD** |
|---|---|---|---|---|
| **Month** | **SYE Average Unimpacted Monthly Flow, cfs** | **25% of Average Monthly Flow, cfs** | **25% of Average Monthly Flow, MGD** | **25% of Average Monthly Flow, MGD** |
| January | 42.57 | 10.64 | 6.88 | 0.32 MGD/sqmi |
| February | 44.30 | 11.07 | 7.16 | 0.33 MGD/sqmi |
| March | 46.58 | 11.65 | 7.53 | 0.35 MGD/sqmi |
| April | 45.00 | 11.25 | 7.27 | 0.34 MGD/sqmi |
| May | 40.55 | 10.14 | 6.55 | 0.31 MGD/sqmi |
| June | 35.62 | 8.90 | 5.76 | 0.27 MGD/sqmi |
| July | 29.29 | 7.32 | 4.73 | 0.22 MGD/sqmi |
| August | 27.36 | 6.84 | 4.42 | 0.21 MGD/sqmi |
| September | 28.57 | 7.14 | 4.62 | 0.22 MGD/sqmi |
| October | 29.72 | 7.43 | 4.80 | 0.22 MGD/sqmi |
| November | 35.78 | 8.94 | 5.78 | 0.27 MGD/sqmi |
| December | 41.03 | 10.26 | 6.63 | 0.31 MGD/sqmi |
| **Annual Average** | ~~37.15~~* | ~~9.29~~* | ~~6.00~~* | |
| **Average per 21.4 sqmi** | ~~1.74 cfs/sqmi~~* | ~~0.43 cfs/sqmi~~* | ~~0.28 MGD/sqmi~~* | |

* annual average is not appropriate for safe yield

cfs =cubic feet per second sqmi = square miles MGD = million gallons per day

According to Brockton's engineers, Silver Lake is 4.1 sq mi., which would suggest that the allocatable safe yield from Silver Lake should be 1.148MGD. (A factor of ten less than the registered volume)

**Biological characterization and the Jones River**

The use of fish communities as a surrogate for aquatic habitats has long been employed by those of us doing hands-on work in rivers and setting restoration goals for rivers. We are glad to see this approach incorporated into the SWMI science. However, we have concerns with how that approach has been incorporated into the overall framework.

1) Anadromous fish. We understand that for a state-wide approach fluvial fish may be the best 'cover all' indicator. However in many of our coastal streams habitat and flow requirements for anadromous fish are of critical importance. In these systems it is inappropriate to simply rely on fluvial fish as the indicator for biological

characterization. Anadromous fish have unique time of year and habitat requirements that will not be addressed under the current proposal. We find it surprising and dismaying that *MarineFisheries* appears to have been excluded from this process. Under the SMWI Framework basins with coldwater fisheries receive increased consideration and protection. Anadromous fisheries should receive every consideration that coldwater fisheries do, yet they are not even acknowledged under SWMI.

2) Lack of data. Many of the rivers, including the Jones River, are shown as having no available data in the USGS report on factors influencing riverine fish assemblages in MA (Armstrong et al., 2011). We find this surprising since we are aware of a number of fisheries studies (fluvial and anadromous) that have been conducted in the Jones River by DFG, *MarineFisheries,* and others. We assume that this lack of data inclusion is explained in the Armstrong paper: "*The Sustainable Water Management initiative prompted the MDCR, MDEP, and MDFG to fund the USGS to accelerate aspects of the project to help inform development of streamflow criteria. This accelerated investigation necessitated limiting the scope of data collection and data analysis so that a report could be completed within a deadline for safe-yield determinations. After the short-term project has been completed, the USGS plans to continue the investigation using a larger suite of fish-community and explanatory variables and a wider range of multivariate statistical tools."* Given the importance and implications of the 20-year SWMI approach to the long-term health of the environment we believe it is unacceptable not to include all of the available data and complete the full suite of analyses rather than rushing to meet an arbitrary deadline.
3) Restoration targets. SWMI has used the biological characterizations to develop 5 stream categories from: 1) highest quality to 5) severe alterations. SWMI suggests "feasible mitigation and improvement" for categories 4-5. However, it should be an explicit goal to set restoration targets for these categories with required measures for improvement to category 3 at a minimum. It is unacceptable to use a degraded current condition as a benchmark for a stream. Instead, restoration plans that include specific restoration targets should set the guidelines for water management.

All three of the points above can be seen in simple examples from the Jones River. The Jones River is a low gradient river typical of coastal systems in Southeastern Massachusetts. The Jones drops from an elevation of approximately 47 feet to sea level in its 7.5-mile long course from Silver Lake to Cape Cod Bay. The Jones River is known to historically support diadromous fish runs, including river herring and American eel, and has the potential to do so again. Both MA DFW and *MarineFisheries* continue to conduct long-term fisheries data collection in the Jones River – none of which was included in the SWMI science. Unsatisfied with treating existing impairments as an acceptable future condition JRWA, NOAA, MA DER, MA DFW, *MarineFisheries*, the Town of Kingston, and private citizens teamed up to conduct a multi-year restoration program. In 2011 this included the removal of a major dam. With the dam removed river herring, anadromous brook trout, and other species have unimpeded access to upstream habitats for the first time in well over 100 years. However due to existing

water (mis)management practices, that would be extended and even worsened under SWMI, these species cannot reach upstream habitats as a result of lack of flow. The hard work and considerable financial contributions of taxpayers may be for naught if EEA does not incorporate *all* of the available data into a forward-thinking, restoration based framework of water management.

**Agriculture, private wells, and other uses are not considered.**

Agricultural withdrawals (registered, permitted, or not) do not appear to be included under SWMI. Known authorized agricultural withdrawals are not listed or included in the totals of the tables of authorized withdrawals for individual basins. Beyond the registered withdrawals farmers can also take additional water (a threshold volume) without requiring a permit. Threshold volumes are not trivial. Agricultural water use can represent a significant portion of the overall usage and allocation in many basins. Agricultural uses have sometimes been considered 'non-consumptive'. It is not clear if this is why they are neglected under SWMI. In fact agricultural uses do consume water and remove it from the basin.

- Crops often contain high water percentages (example: cranberries ~ 90% water). By design crops are harvested and exported out of the basin.
- Agricultural water management practices such as reservoir storage, bog flooding, watering, etc. expose water to evaporative processes that would not be encountered by groundwater. This results in a net increase in water export out of basin. This is essentially a 'consumption' in terms of basin-scale water budgeting.
- Timing of crop flooding (cranberries) can interfere with fish migration and passage.
- Pesticide and fungicide applications can impact DO as well as adversely impact fish productivity
- Obstructions/culverts interferes with fish and wildlife passage

Agricultural permits and registrations can and should require mitigation strategies.

- Stream by-pass channels should be required.
- Irrigation reservoirs should replace direct withdrawals from rivers and streams.

DEP should NEVER authorize otherwise un-permitted withdrawal points through WMA permitting and registration.

- These can impact fish, larvae, eggs and wildlife.
- Previous errors should be evaluated and corrected

This is not about the allocation of water volume, it is about using the WMA to authorize an impact that would otherwise not be permitted.

- A review of Registered points of withdrawals should be mandated, because the damage can be extreme and a permit by default is an assault on the environment.

Such diversions occur in the Jones River.

Other known uses such as private wells are not adequately considered. If anything the SWMI framework as presented encourages the use (and overuse) of private wells and

other sources that will not be managed. Golf courses, and other commercial enterprises should get reviewed. DEP should consider lowering the threshold for permits. Towns should not only permit the location of private wells, but these wells should be metered and tracked for impacts and be regulated when low stream flows so require. Some private wells belong to institutions that use enormous amount of water, often in wasteful ways.

**Other Comments**

- One way street. The SWMI Framework says "The biological categories are based in part on a statewide model (using actual data) that has been scientifically peer reviewed and validated. However, the variables within the model are either measured from GIS large-scale overlays (impervious surface, watershed area, wetland area) or themselves modeled (August flow alteration). We recognize that there may be particular sub-basins in which the variables within the model are less certain and can be groundtruthed. **Regulations which are derived from this proposal will give the applicant an opportunity to demonstrate that the model has placed a particular location in an incorrect category, and we will develop guidance on how such site specific work should be done.**" Why can an applicant (for more water) have an opportunity to challenge the categories? Where is the opportunity for non-applicants (i.e. environment) to challenge the categories?
- Another one-way street. SWMI allows "any person" an opportunity to provide a position "that a waterbody should not be designated as a coldwater resource" and therefore does not receive those protections. Where is the opportunity to challenge (the error) that a river not designated as CWR, is, and show that they are?

**Water Quality.**

As proposed the SWMI framework treats all water as equal regardless of its quality. We understand that SWMI is intended to address flow (quantity) and that other policies are in place to address water quality. However, even in terms of water budgeting quality is an important consideration. SWMI water budgeting and allocation is much like a financial budget and allocation – and we all know that a pound of pennies isn't the same as a pound of $100 bills. The SWMI calculations add septic, NPDES, and other return flows back in to the amount of available water in a basin. Similarly, 'non-consumptive' uses appear to be considered a net balance and are therefore neither subtracted nor added. The reality is that quality DOES matter at every level including relative abundance of fluvial fish, anadromous fish spawning success, drinking water economics, public health, etc. Using water, contaminating it, returning it to the stream, and then attributing the same value to it simply based on quantity does not pass even the most basic straight face test. If EEA truly considers all water to be equal perhaps they should require that septic, NDPES, and agricultural discharges are returned directly to the municipal water users leaving a greater amount of untouched water in the river for ecological use.

**Endorsements & Conclusion**

We're out of time, and unable to comment further. We are not replicating the comments of the other environmental organizations, rather, we hope to add our unique perspective

and draw attention to issues in the Jones River Watershed. We are especially grateful to Kerry Mackin of IRWA whose brilliantly thorough comments we fully support, with the few additions we have managed here. We have also signed on to and endorse the letter from the Rivers Alliance and each of its many members whose mission is vital to the welfare of the Commonwealth as we work to restore and protect all the rivers and habitats of Massachusetts. We have not tried to reiterate these comments due to on-going constraints, but we ask that you consider them as our own.

We know the equitable distribution of wealth is a greatly challenging concept for we humans. Our natural resources are our greatest assets, and we cannot live without them. Those of us in the rivers working to understand and defend the smallest to the largest of Nature's species need most of all from the government agencies to work with us so that the impossible tasks ahead can be accomplished. We ask that EEA work with us to restore the connectivity of Cape Cod Bay and Silver Lake through a continuously flowing Jones River. So much can be gained—or everything will be lost.

Thank you for the opportunity to comment, and the open communication that you have practiced throughout this challenging democratic process. We trust this will continue going forward.

Respectfully,

Pine duBois
Executive Director

Alex Mansfield
Ecology Program Director

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