

August 3, 2004

HABITAT MANAGEMENT DIVISION EVALUATION**CITY OF NEWPORT NEWS**

#93-0902

SUPPLEMENTAL HEARING ADDENDUM**Narrative**

In response to the settlement agreement between the Commission and the City of Newport News, which calls for a supplemental hearing in settlement of litigation, the City on behalf of the Regional Raw Water Study Group (RRWSG) submitted, an amendment to their application on April 1, 2004, including a report from the King William Reservoir Fisheries Panel assembled for the RRWSG entitled **King William Reservoir – Mattaponi River Fish Impact Assessment and Mitigation Report (Fisheries Panel Report)**. The litigation, initiated by the City of Newport News, followed the Commission's decision at its May 14, 2003, meeting to deny the City's application to construct a 75 million gallon per day (mgd) raw water intake structure in the Mattaponi River at Scotland Landing, a raw water distribution line under Cohoke Creek in King William County and the Pamunkey River between King William and New Kent Counties, as well as a water discharge structure in Beaverdam Creek, a tributary to Diascund Reservoir in New Kent County. The intake, distribution line and outfall are part of the King William Reservoir Project. The reservoir itself involves a dam on Cohoke Creek that will create a 1,526-acre reservoir designed to meet future water needs projected by the RRWSG.

The changes proposed by the City's amendment to the permit application concern operation of the intake structure in the Mattaponi River to address effects on anadromous fish spawning through the establishment of a pumping hiatus (i.e. a seasonal shutdown of water withdrawal operations) using temperature as a trigger based on the results of a long-term (8 years) pre-operational ichthyoplankton monitoring program. The pumping hiatus and monitoring program are described in detail in the City's Fisheries Panel Report. The City's amendment also describes proposed construction details, including the use of a sheet-pile baffle structure and turbidity curtain during installation of the intake screens. There are no physical changes to the permanent facilities previously considered by the Commission.

The City previously proposed several permit conditions designed to minimize impacts to fisheries including a time-of-year restriction that would preclude operation of the intake for 60 days each year during the "Shad Spawning Period" up through 2020 or for as long as the current American shad moratorium was in effect, Temporary Construction Protection, Shad Hatchery Mitigation and Fish Passageway Mitigation. As previously proposed by the City, the 60-day period would have hinged on the daily monitoring of temperature, flow rate and salinity.

Narrative (cont'd)

The new proposal does not specify a set time limit, per se, for the duration of the proposed hiatus. As proposed it would be based on temperature triggers that would be defined as a result of the proposed 8-year study. This method proposed is based on a surrogate Hudson River data set that established the feasibility of using temperature as a trigger to protect vulnerable early life stages of American shad present in the vicinity of the proposed intake at Scotland landing. The Panel identified eggs and yolk-sac larvae as the vulnerable early life stages of American shad that require protection. Based on the analysis of the Hudson River data, the City has agreed to ensure through a pumping hiatus, to maintain a minimum 97 percent protection of the standing crops of eggs and yolk-sac larvae in 7 of 8 years of study and no less than 95 percent protection of standing crops of eggs and yolk-sac larvae in any single year. They have also agreed to a maximum pumping hiatus that would begin when water temperatures reach 10° C and end when water temperatures reach 22° C. Similar levels of protection arising out of the pumping hiatus are anticipated for other vulnerable species' life stages including river herring, striped bass and white perch. The duration of the pumping hiatus determined by these temperature triggers would vary from 44 to 83 days, and average 61 days. According to the City, the RRWSG has determined that if these same triggers are applied on the Mattaponi River, the King William Reservoir would still be capable of meeting its water supply objective with pumping hiatuses of that average magnitude during non-drought emergency years. As before, the City's proposal calls for suspension of the hiatus during periods of drought emergency to protect public health, safety and welfare.

The Fisheries Panel recommends the City and the RRWSG commit to implementation of a pumping hiatus over a temperature range of at least 12° C. While the results of the pre-operational monitoring could lead to an expansion of the hiatus range beyond a 12° C range, there would not be a contraction of the range. The city believes this would allow for a Mattaponi-specific hiatus that could be initiated at a somewhat higher or lower temperature than 10° C if monitoring results indicate that it would be appropriate.

In addition to the proposed pumping hiatus, the previously proposed mitigation measures identified by the City have been retained. This includes a time-of-year restriction for construction, intake screen design (1mm wedge wire screen and a revised maximum 0.15 fps approach or slot velocity), removal of several fish passage blockages and hatchery augmentation. Although the Fisheries Panel considered hatchery augmentation unnecessary and advised against implementing this measure due to a potential reduction of genetic variation due to the low number of breeders, the City indicates the RRWSG will adhere to its previous commitment unless the Commission deems otherwise.

Issues

Based on the project plans contained in the application for permit, and as described in the April 22, 2003, Habitat Management Division Evaluation, the Commission must

Issues (cont'd)

consider authorization for the installation of the intake structure in the Mattaponi River near Scotland Landing as well as the water distribution lines under Cohoke Creek downstream of Route 632 and the Pamunkey River at Cousiac Marsh, and the discharge structure in Beaverdam Creek upstream of Interstate 64 in New Kent County. The City has proposed to use directional drilling for the Cohoke crossing as was planned for the crossing under the Pamunkey River. In addition, the intake pipeline from the shoreline into the Mattaponi will be installed using microtunneling technology. There will be no disturbance of the shoreline and only the intake assembly will require any work in the river bottom. Installation of the intake structure in the Mattaponi River will require the excavation of 2,500 cubic yards of material. The City maintains that barges will be used to transport any excavated bottom material to the Corps' Craney Island Dredge Material Placement Area. Should Craney Island be unavailable, as we suspect, the City has stipulated that they will identify an acceptable upland site with existing material transfer capabilities that will preclude any additional disturbance to State-owned bottoms or result in impacts to either tidal or non-tidal wetlands. The reservoir dam on Cohoke Creek in King William County is authorized by statute (§ 28.2-1203 of the Code of Virginia) and does not require a permit from the Marine Resources Commission.

The settlement agreement stipulates that all participants and commentators at the supplemental hearing will be limited to the presentation of testimony and evidence regarding potential impacts of the proposed Mattaponi River raw water intake on the early life stages of American Shad that utilize the Mattaponi River as spawning and nursery grounds, as well as and other fishery resources the Commission is entrusted to protect. The Commission's decision will be based on the entire record, including that of the supplemental hearing.

As specified in the settlement agreement, a notice with a 30-day public comment period was provided on the amendment to the City's Joint Permit Application. Written comments were limited to the potential impacts of the proposed Mattaponi River raw water intake on the early life history stages of American Shad. In addition to the public, VIMS was asked to review and comment on the amended application and supporting materials. Finally, an additional two-week public comment period was provided on the VIMS report itself.

As before, we received numerous comments from those opposed to the project. A total of 711 protests were received in the form of letters, fax, e-mail and pre-printed post cards. Many of the protests received by fax and email were the same comments, just submitted by different individuals. In addition to comments from individuals we have received protests from the Friends of the Rivers of Virginia, King and Queen County, Mattaponi and Pamunkey Rivers Association, Inc., Float Fishermen of Virginia, SaveOurRiver.org, Southern Environmental Law Center, Rock the Earth, Chesapeake Bay Foundation, Alliance to Save the Mattaponi, West Point Hunt Club, Sierra Club, Institute for Public Representation on behalf of the Mattaponi Indian Tribe, Coastal Virginia Waterman's

Issues (cont'd)

Association and the Izaak Walton League of America. This correspondence, or representative samples thereof, were previously provided to you. In general, those **IN OPPOSITION** believe the project will still result in adverse impacts to American shad and other species they feel the Commission is charged with protecting. Many also believe any monitoring and studies proposed by the applicant should be completed before any permit decision is made by the Commission. More specific comments regarding the amended application and Fisheries Panel Report include the following:

The intake is located in the Commonwealth's prime American shad spawning habitat. The Chesapeake Bay Foundation suggests that the City's Fisheries Panel was not given the authority to address the precise location of the proposed intake, and reiterates that the City has offered no alternative locations for consideration.

Ecosystem effects are not adequately considered. The protestants suggest that the entrainment of small planktonic plants and animals through the intake should be considered since they are key components of the ecosystem and are the food upon which larval and juvenile fish depend. The effect of such loss cannot be assessed without further study. Dr Cheslak, on behalf of the Mattaponi Tribe, suggests that even if the hiatus will protect eggs and larvae, the intake structure will still remove vital nutrients from the water during non-hiatus periods; it will harm young-of-the-year shad (that depend upon in-river productivity), and therefore significantly impair shad survival and long-term population sustainability. In addition the Chesapeake Bay Foundation suggests that the conclusions reached by the City's consultants regarding salinity intrusion and ecosystem-level effects cannot be considered to represent an accurate assessment of the impacts of the King William Reservoir Project to fisheries resources. They further suggest that little effort was made to incorporate the predicted effects of climate change and sea level rise in their assessment of the efficacy of a seasonal pumping hiatus.

The protection offered by the design features of the intake structure will be less than predicted. Dr. Edward Cheslak believes that the actual effectiveness of the proposed wedge wire screen technology is largely unknown, improperly characterized, and significantly overestimated. Several commentators suggest that there is a distinct probability of the potential for the development of "hot spots" on the intake screens. The resulting high approach velocities, coupled with low sweep velocities during slack water periods, will conspire to minimize screen effectiveness.

Hiatus temperature triggers may need to be expanded. Several commentators suggest that an upper temperature trigger of 22° C will not be sufficient to protect American Shad and they recommend that post yolk-sac larvae should also be protected by any pumping hiatus. Other protestants suggest that the difference between the Mattaponi and Hudson Rivers is too great to rely on the Hudson River data as an appropriate surrogate to define a hiatus. In addition, while temperature is the primary factor influencing spawning it was

Issues (cont'd)

also suggested that other factors (e.g. photoperiod, low velocity and water turbidity) should also be considered.

Suspension of the hiatus will result in fishery impacts. Several protestants argue that pumping during drought emergencies will occur more often than the City predicts and that the damage to the fishery will be greatest during such periods.

Independent Monitoring and Oversight. An additional comment was received suggesting the need for "independent operational compliance verification and oversight" for any permit conditions imposed by the Commission as a condition of approval.

In response to the request for public comment, correspondence **IN SUPPORT** of the project was also received from numerous organizations, local governments and individuals. A total of 45 letters, faxes and email were received, as well as 1,500 pre-printed postcards. This correspondence (excluding copies of all postcards) was previously forwarded to you. In addition to comments from individuals, correspondence was also received from the James City County Board of Supervisors, James City Service Authority, City of Poquoson, Powhatan Shores Homeowners' Association, Siemens VDO Automotive Corporation, Hampton Roads Planning District Commission, Peninsula Housing and Builders Association, York County, City of Hampton, City of Williamsburg, Virginia Section – American Water Works Association, City of Chesapeake, and the Virginia Peninsula Chamber of Commerce. The project is supported for the following reasons:

Operational and design elements of the project are designed to minimize impact. The supporters cite the extensive operational and design elements of the project that are designed to specifically minimize the intake structures impact on the Mattaponi River fisheries, particularly American shad. This includes a pumping hiatus recommended by the City's Fisheries Panel and multiple layers of protection provided by the intake design, including 1mm screen mesh size, low pumping velocities, a mid-water intake location and DEQ mandated minimum instream flow requirements.

The levels of protection for fisheries are sufficient to warrant Commission approval. The supporters maintain that the operational and design elements the City has agreed to, provide a level of protection for the fisheries and ecosystem while accommodating construction of a reservoir that will satisfy the water needs of all current and future citizens of the Peninsula.

Our scientific advisor, the Virginia Institute of Marine Science (VIMS), also provided an assessment of the Fisheries Panel Report. VIMS, in their analysis, of the *King William Reservoir-Mattaponi River Fisheries Impact Assessment and Mitigation Report*,

Issues (cont'd)

evaluated the proposed study design, the applicability of the Hudson River demonstration exercise to the Mattaponi River, the wedge wire screen protection efficiency, and the potential effects of pump generated noise.

Based on the Fisheries Panel Report, and the information that was available at that time, VIMS offered the following findings and recommendations:

- They feel that the chosen intake location continues to pose some of the highest potential risks to juvenile anadromous fish populations in the area.
- They acknowledged that while use of a water withdrawal hiatus to reduce risks to larval shad populations in the Mattaponi River has the potential to minimize impacts on that species, effectively implemented it could prevent the City from realizing the desired yield of water.
- They felt given the fact that the intake was in tidal water, the probability of early life stage impacts as a result of the intake were significantly higher than estimated by the Fisheries Panel Report. VIMS felt that the flood and ebb tides would transport eggs and larvae past the intake multiple times under any river flow condition, and that the resulting multiple exposures would occur any time the intake operated, affecting whatever happened to be in the river at those times.
- VIMS also believes that there is insufficient information at the present time to support an appropriate risk assessment of the proposed pumping hiatus. In their opinion, the uncertainties cannot be properly evaluated before more is known about specific conditions in the Mattaponi River. In order to reduce the risk of undesirable impacts to either the fishery resources or the City's safe water yield objective, they strongly recommend completion of the monitoring program prior to any final permit decision.

In addition, VIMS also recommends that post yolk-sac larvae be included in the proposed study, and that the survey period be extended to at least the end of June or optimally to mid-July. VIMS further suggested that post yolk-sac larvae be included in the proposed protection strategy. If this were done, they felt that the proposed hiatus would need to be expanded beyond the proposed 10°-22° C temperature range. Replicate sampling, extensive gear sampling and expansion of the post pilot survey to at least eight years (10 years total) were also recommended. While VIMS suggests that the Hudson River data may successfully demonstrate the utility of the proposed monitoring program, they do not feel it serves as a reliable estimate of the duration of a potential pumping hiatus for the Mattaponi River based on the significant physical differences between the two rivers. VIMS did conclude that the report provided sufficient information to conclude that the frequency and duration of the noise expected from intake operation would likely have a minimal influence on the fish in the littoral environment.

Issues (cont'd)

Finally VIMS reiterated a recommendation from their original 2003 report regarding the necessity for the Commonwealth to develop a comprehensive water allocation strategy that incorporated environmental, social, and economic needs prior to consideration of any more large scale reservoir projects.

Upon receipt of the VIMS report, staff placed it on our agency web site and provided an additional two-week public comment period. In response to that notice, a total of 259 letters, faxes, emails, and pre-printed post cards were received from those opposed to the project. With the exception of comments from the City and their Fisheries Panel, we received no other comments regarding the VIMS assessment. In addition to numerous individuals, comments were provided by many of the same organizations that initially commented on the City's revised application and Fisheries Panel Report.

Many of the comments on the VIMS report reiterate that in spite of the concessions, the intake location still poses some of the highest potential risk to juvenile anadromous fish populations in the area, and that uncertainties still exist regarding the viability of a pumping hiatus given the differences between the Hudson and Mattaponi Rivers. There was further agreement that post yolk-sac larvae should be protected considering their fragile nature and that the probability of interactions of eggs and larvae with the intake was greater than that identified in the Fisheries Panel Report. The protestants believe that the VIMS assessment provided clear evidence that the previous decision by the Commission to deny the project was correct. They also agreed that the Commission should require completion of the proposed studies and monitoring before making any permit decision in order to be able to effectively quantify the project's impacts on fisheries resource. There was also a suggestion that the Commission should require an analysis of the pumping hiatus on the timing frequency and duration of simulated hiatus suspensions. Other comments also suggested that further analysis of ecosystem effects should be considered.

Over the past month, staff has met with the City's representatives weekly to discuss certain stipulations and special conditions they are willing to make and abide by in the event a permit is granted. These conditions address the pumping hiatus issue, the monitoring program and several other issues of concern. The actual conditions are attached hereto. In general, however, the conditions are as follows:

Screen Design – The City proposes intake screens with 1mm slot opening and a maximum through slot velocity of 0.15 feet per second (a reduction from the 0.25 feet per second previously sought). This will require a slight increase in the length and diameter of the screens. The City has also stipulated that the screen assemblies will be made of standard Type 316 stainless steel materials without any special coatings, chemical treatments or special alloys.

Pumping Hiatus – The City has agreed to a springtime pumping hiatus, the initiation and length to be determined by temperature triggers arising out of an 8-year study. The

Issues (cont'd)

pumping hiatus will be designed to protect no less than 97% of the standing stock of American shad eggs and yolk-sac larvae in 7 of 8 years of pre-operational data collection and study, and no less than 95% of the standing stocks of such eggs and yolk-sac larvae in the eighth year.

Pre-operational Ichthyoplankton Monitoring Program – The City has agreed to commence the eight year ichthyoplankton monitoring program in 2006, or the first calendar year after the Corps has issued the required Section 404 permit, whichever is later. The monitoring program will be in accordance with Appendix D in the Fisheries Panel Report, and data will be collected up until the river water temperature reaches 28° C in order to document the presence of post yolk-sac larvae.

Screen Alignment – The City has agreed to align the intake structures in order to maximize natural current sweeping velocities.

Intake Chemical Feed System – While the City wishes to pre-install a potential chemical feed system that may be used to address bio-fouling mollusks, like the zebra mussel, the City has agreed not to use any such system until the chemical or other proposed measures have been specifically approved by the Department of Environmental Quality and the Commission has granted express permission to do so.

Pre-Operational Monitoring Reports – The City has agreed to provide annual reports which will include the results of the spring spawning season monitoring, and a cumulative summary of all data collected thus far, by September 30th of each year.

Setting Hiatus Triggers - At the end of the eighth year, the City will provide a final report and analysis of all data collected with their recommendation for the proposed temperature triggers for initiation and cessation of the spring pumping hiatus. The hiatus must adequately meet the 97% and 95% protection levels specified in the City's application. In no case will the temperature range be less than 12° C. The Commission must approve both the report and trigger values before any pumping may occur during the period March 1 – June 30 unless a water supply emergency has been declared.

Post Operational Monitoring – During water supply emergency years, the City has agreed to conduct entrainment monitoring in the manner described in Appendix D of the Fisheries Panel Report. Entrainment monitoring will be determined for eleven species of fish (American shad, hickory shad, gizzard shad, alewife, blueback herring, striped bass, white perch, yellow perch, longnose gar, Atlantic sturgeon, and common carp).

Summary

It is clear that the City, and RRWSG, have agreed to accept a spring pumping hiatus of up to a maximum of 160 days (March 1 – June 30) designed to protect 97% of the standing stock of American shad eggs and yolk-sac larvae in 7 of the 8 years studied in

Summary (cont'd)

the pre-operational monitoring plan, and at least 95% in the eighth year. The City has also agreed to reduce their maximum through slot velocities to no more than 0.15 feet per second in a further effort to minimize effects on post yolk-sac American shad larvae. They have also extended the ichthyoplankton monitoring program up until the river water temperature reaches 28°C in an effort designed to collect additional data regarding the prevalence of post yolk-sac shad larvae.

All of the City's efforts, agreements and concessions concerning the intake are designed to minimize the risk and impact to early life stages of American shad that utilize the Mattaponi River as a spawning and nursery area, as well as several other fishery resources that the Commission is entrusted with protecting. While these agreements will undoubtedly lessen the potential impacts of the intake, neither VIMS, nor the City's own Fisheries Panel of Experts can state that they have reduced the potential impacts to zero.

VIMS, as our scientific advisers in their June 25, 2004, letter to Commissioner Pruitt regarding the City's Fisheries Panel Report states "... there is insufficient information to support an appropriate risk assessment of the pumping hiatus proposal. It is our considered opinion that the uncertainties cannot be properly evaluated before more is known about conditions in the Mattaponi River. In order to reduce the risk of undesirable impact to either the fish resources or the City's safe water yield objective, we strongly recommend completion of a monitoring program prior to any final permit decision."

While the proposed ichthyoplankton monitoring program may go a long way toward providing sufficient information for us to quantify the magnitude of the impacts on the fishery, the data and final report will not be available until 2014 at the earliest. Furthermore, although differences of opinion exist between VIMS and the City's Fisheries Panel regarding the probability of early life stages of fishes being impacted by the intake during periods when the propose hiatus is not in effect, the fact remains that there will be some level of impact.

VIMS continues to maintain that the York River watershed is the most productive Virginia Bay tributary for American shad and that the abundance of shad in the York River is more heavily influenced by production in the Mattaponi than in the Pamunkey River. In fact, their data indicate that the region of the Mattaponi where the intake is proposed is a highly productive area within the most productive Virginia River with respect to American shad. Nothing has been provided by the City or its Fisheries Panel to refute that assertion. In addition, affects on other species such as Alewife, blueback herring and white perch cannot be entirely discounted.

In fact, the Fisheries Panel specifically states that "VIMS' statement about the Mattaponi River being the primary location for shad production within the York River watershed reiterates information presented in their earlier communications. The Panel's charge was to develop recommendations on monitoring, facility operation, and mitigation that would ensure that there would be virtually no impact of KWR water withdrawal on whatever

Summary (cont'd)

shad population is present. The panel did not assess the relative size or importance of the Mattaponi River shad stock to the broader suite of shad stocks, and thus the Panel has no response to the specific VIMS comment."

In light of the foregoing, and coupled with the uncertainty over the status of the Corps' Section 404 permit, as well as both pending and potential litigation, staff recommends that you defer a final permit decision on the City's application until the data and findings of the ichthyoplankton monitoring study and final report have been received, reviewed and agreed upon. Once the specific temperature cues and/or triggers have been determined for American shad that spawn or utilize the Mattaponi River in the vicinity of the intake as a nursery, a tailored pumping hiatus and mitigation strategy can be developed in order to truly eliminate most if not all impacts on the fishery. If all impacts cannot be eliminated, the data will allow us to accurately quantify the impacts in an effort to truly strike a balance between the City's needs and the withdrawal's impacts on aquatic resources to the maximum extent practicable.

Should such a delay prove unacceptable to the applicant, or should the Commission conclude that the project benefits outweigh the impacts and risk to fishery resources in the Mattaponi, staff would suggest that the permit conditions proposed by the City be accepted, including a reduction in the maximum through slot pumping velocity to 0.15 feet per second, and with the further stipulation that the springtime pumping hiatus be extended from March 1 – July 31 with a goal of protecting 97% of the American shad life stages from eggs up through post yolk-sac larvae. While recent studies have indicated that post yolk-sac larvae may not be as susceptible to impingement or entrainment due to their developmental state, observed swimming/burst speeds and at reduced slot intake velocities of 0.15 feet per second, those studies were rudimentary and the results preliminary. The hiatus condition could be modified if it is clearly shown and documented that the post yolk-sac larval life stages are not impacted by the intake operation, or if the hydraulic zone of influence surrounding the intake is much smaller than VIMS suspects.

As before, Staff believes that the other mitigation efforts identified by the City should also help offset effects on fishery resources through fish passageway improvements and support for hatchery efforts for stocking American shad. The Commission may wish, however, to require an analysis of the potential reduction in genetic variation associated with a low number of breeders before implementing any additional stocking program. We would also continue to suggest consideration of our previous recommendation that the RRWSG fund or endow a program that would ensure the Mattaponi Watershed is maintained as a viable and productive resource for future generations. This could include funding of an independent authority or organization with representation from each locality in the watershed and appropriate regional interest groups to oversee and manage this effort. Appropriate funding amounts could be based on the cost of mitigation, restoration or management efforts as might be identified in the Chesapeake 2000 Agreement, various fisheries management plans and Virginia's Tributary Strategies or

Summary (cont'd)

other similar reports. Furthermore, such an independent authority might be able to act as an oversight organization to ensure permit compliance.