White Oak Pond Watershed Association
Water Sampling Committee Report – 2006

Water Sampling Results

Last year (2005) marked the 10th year of water sampling for White Oak Pond. This is an important milestone to reach and reflects the efforts of many volunteers in helping with water sampling. The importance of 10 years of sampling is that it provides enough data for the Lake Assessment Program to make statistically significant analysis of the long-term trends for the pond. We received the Biennial Report in the winter and the results show that there are no significant changes in the aspects of the pond that are being monitored with the exception of 'conductivity', which is further explained below. That is generally good news and says that White Oak Pond is almost as healthy as it was 10 years ago when the monitoring began.

- ✓ Conductivity has increased in the pond and most particularly at the Dump Inlet location. High levels of conductivity may indicate that sources of pollution are entering the pond. *Sources of increased conductivity are primarily due to human activity which include failed or marginally functioning septic systems, and agricultural and road runoff*. The Dump Tributary has also shown higher than expected levels of chloride. High levels of chloride can also indicate sewage pollution entering the pond. Because the Dump Tributary is a known potential source of inputs, we are recommending regular sampling for the Dump Tributary. (See below about sampling locations and frequency).

- ✓ While hypolimnetic (lower level) phosphorus has not shown a significant change over the period, it has fluctuated greatly, possibly suggesting something unusual and undesirable happening in the watershed. Excessive phosphorus in a pond can lead to increased plant and algal growth, which is often undesirable. *Phosphorous sources typically include septic systems, animal waste, lawn fertilizer, road and construction erosion and natural wetlands*. Other measures indicate there is 'internal phosphorous loading' meaning the pond has its own internal source of phosphorous, which makes minimizing the other sources, many of which are a result of human activities, even more important.

Since levels of both conductivity and phosphorous are often a result of human activities there is a handout available to watershed residents to help educate and inform you about what activities can negatively impact the pond.

Water Sampling Locations and Sampling Frequency

There has been some variation and discrepancy in the sampling locations over the years and we are in the process of better identifying the sampling locations. The sampling location names are being changed to better reflect their location (Tributary, Inlet, Outlet,

Deep Spot) and a description of their locations is being provided to those doing the water sampling. The more consistently the locations are sampled, the more relevant the data from the sampling is.

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1. A spring runoff sampling at all tributaries.
The tributary sampling will let us know if there are any locations where there are particularly undesirable levels of inputs into the pond. Sampling at a runoff event gives us the best one-time sampling picture of what is going into the pond.

2. A June, July, and August sampling at the pond deep spot and re-sampling at any tributary location that showed undesirable levels in the spring runoff sampling.
The deep spot sampling gives an indication of the overall health of the pond and an indication of how the pond is responding to any inputs.
Repeated sampling at any tributary trouble spots will let us know if the undesirable levels are continuing to occur.

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Inlet – most of these sample locations are being phased out in favor of sampling at the tributary location upstream. If there is an inlet location sampling point added, it means to sample the pond water at the point where the tributary water flows into the pond. Typically this is sampled from a boat on the pond and sampling would be within 5-10 feet of the shoreline.

Outlet – this sample location is at the dam outlet location. It is preferable to sample after the water flows over the dam, but since this is dangerous, it is okay to sample from a boat on the pond about 5-20 feet away from the dam.

Deep Spot – This is the location in the pond which represents the deepest portions of the pond. It is approximately 10 meters in depth and is located by triangulating between the White Oak Pond motel, the middle of the shoreline of the XX island and the resident of XXXX.

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Last year (2005) marked the 10th year of water sampling for White Oak Pond. This is an important milestone to reach and reflects the efforts of many volunteers in helping with water sampling. The importance of 10 years of sampling is that it provides enough data for the Lake Assessment Program to make statistically significant analysis of the long-term trends for the pond. We received the Biennial Report in the winter and the results show that there are no significant changes in the aspects of the pond that are being monitored with the exception of 'conductivity', which is further explained below. That is generally good news and says that White Oak Pond is almost as healthy as it was 10 years ago when the monitoring began.

- ✓ Conductivity has increased in the pond and most particularly at the Dump Inlet location. High levels of conductivity may indicate that sources of pollution are entering the pond. *Sources of increased conductivity are primarily due to human activity which include failed or marginally functioning septic systems, and agricultural and road runoff*. The Dump Tributary has also shown higher than expected levels of chloride. High levels of chloride can also indicate sewage pollution entering the pond. Because the Dump Tributary is a known potential source of inputs, we are recommending regular sampling for the Dump Tributary. (See below about sampling locations and frequency).

- ✓ While hypolimnetic (lower level) phosphorus has not shown a significant change over the period, it has fluctuated greatly, possibly suggesting something unusual and undesirable happening in the watershed. Excessive phosphorus in a pond can lead to increased plant and algal growth, which is often undesirable. *Phosphorous sources typically include septic systems, animal waste, lawn fertilizer, road and construction erosion and natural wetlands*. Other measures indicate there is 'internal phosphorous loading' meaning the pond has its own internal source of phosphorous, which makes minimizing the other sources, many of which are a result of human activities, even more important.

Since levels of both conductivity and phosphorous are often a result of human activities there is a handout available to watershed residents to help educate and inform you about what activities can negatively impact the pond.

Water Sampling Locations and Sampling Frequency

There has been some variation and discrepancy in the sampling locations over the years and we are in the process of better identifying the sampling locations. The sampling location names are being changed to better reflect their location (Tributary, Inlet, Outlet,

Deep Spot) and a description of their locations is being provided to those doing the water sampling. The more consistently the locations are sampled, the more relevant the data from the sampling is.

We are also reviewing the number of sample locations and the frequency at which they are sampled. Our goal is to sample enough to continue to have good data about the health of the pond but not to over sampling and use limited financial and volunteer resources unwisely. With input from the state biologist, we are recommending the following sampling schedule and locations:

1. A spring runoff sampling at all tributaries.
The tributary sampling will let us know if there are any locations where there are particularly undesirable levels of inputs into the pond. Sampling at a runoff event gives us the best one-time sampling picture of what is going into the pond.

2. A June, July, and August sampling at the pond deep spot and re-sampling at any tributary location that showed undesirable levels in the spring runoff sampling.
The deep spot sampling gives an indication of the overall health of the pond and an indication of how the pond is responding to any inputs.
Repeated sampling at any tributary trouble spots will let us know if the undesirable levels are continuing to occur.

3. A summer runoff sampling at all tributaries.
Again, the tributary sampling will let us know if there are any locations where there are particularly undesirable levels of inputs into the pond.

White Oak Pond Watershed Association
Water Sampling Committee

Description of Sampling Locations

The name of the sample location indicates the general location for sampling:

Tributary - sample upstream away from the lake about 100-200 yards in a location on the stream where the water is distinctly flowing and where you can obtain a clear sample with as little sediment as possible. Typically this sampling is done on foot either by walking down the stream towards the pond or by disembarking from a boat on the pond and walking upstream .

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Inlet – most of these sample locations are being phased out in favor of sampling at the tributary location upstream. If there is an inlet location sampling point added, it means to sample the pond water at the point where the tributary water flows into the pond. Typically this is sampled from a boat on the pond and sampling would be within 5-10 feet of the shoreline.

Outlet – this sample location is at the dam outlet location. It is preferable to sample after the water flows over the dam, but since this is dangerous, it is okay to sample from a boat on the pond about 5-20 feet away from the dam.

Deep Spot – This is the location in the pond which represents the deepest portions of the pond. It is approximately 10 meters in depth and is located by triangulating between the White Oak Pond motel, the middle of the shoreline of the XX island and the resident of XXXX.

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