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## **Attention: Dr. Tom Scott, PG., President Tallavana Homeowners' Association**

### Introduction

After a thorough review of the Cormorant situation in Lake Tallavana, I have come to the conclusion that these birds pose a threat to the native wildlife as well as possible habitat disruption. Cormorant feces are a source of nutrients. Fish eaten in the lake, when returned to the lake as feces, are not, by themselves a net loading of nutrients, since the fish came from the lake, however these nutrients are transformed into more available and potentially harmful forms, more available for eutrophication processes. Significantly, the transformation of the live fish into feces yields fecal coliform bacteria. Avian fecal coliform bacteria are both a net load and a health concern.

It is reported that flocks of over 1000 Cormorants are common during the winter months on Lake Tallavana. The continued effort of the local community prevents these birds from roosting and living on the lake. If the Cormorants lived on the lake, instead of roosting elsewhere, the nutrient and bacteria load would at least double since Cormorants have been shown to defecate more when they are resting during the night. Roosting Cormorants have been shown to eventually kill the shoreline vegetation, even the trees, by covering them with excrement.

The problem with the ever-increasing numbers of these birds seems to be due to changes in their lifestyle and habitat further north. These birds typically nest and lay four eggs per season in the great Lakes Area. It seems there are more Cormorants each season, probably due to lack of predators. The most effective control seems to involve getting at their eggs, usually painting them with vegetable oil to suffocate them.

Different state agencies seem to have diverse opinions regarding Cormorants, all rather negative. The United States Fish and Wildlife Commission has declared them a recognized pest and offers a free lethal harassment permit. The Florida Game and Freshwater Fish Conservation Commission also labels them a nuisance species citing that

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there are at least 100,000 on Lake Talquin each year. The Florida Department of Environmental Protection has recognized their ability to degrade habitat, due to nutrient loading, transformation and imbalance. They also cite the subsequent demise of shoreline vegetation calling them an exotic by virtue of their changed, un-natural behavior. Indeed, they are not native to our area, and are no longer migrating the way they used to. Many no longer migrate north in the warm months but take up yearlong residence on our lakes. Cormorants are replacing native species like the Anhinga. In short, it is a very positive step to discourage Cormorant residence at Lake Tallavana. Some people may not be pleased at this prospect, but overall the ecology, the health of the lake as determined by its water quality, fish population, bird species richness and vegetative health will be improved if the Cormorants can be dissuaded from residing in Lake Tallavana.

## Text

Cormorants eat a diet of fish. Their prey typically measures 5 to 15 centimeters but is often much bigger. It is difficult to quantify the effects of these birds on Lake Tallavana, but in other areas they have been shown to have a severe impact on the ecology and economy of the ponds, lakes and reservoirs they invade. Cormorants make no distinction between the species they eat. They consume both common and protected fish. The fish species in Lake Tallavana already suffer from impaired water quality with related oxygen depletion. The presence of so many Cormorants makes the situation even worse.

Cormorants favor open water and avoid highly vegetated areas. The vegetation offers cover for the fish and the Cormorants have difficulty catching them. When there is no shoreline vegetation it is like fishing in a bucket. The vegetative cover also makes it more difficult for the larger bass to forage for prey. A lake with a well vegetated littoral zone and open water in the center is optimal for the fish population but detrimental to the Cormorants.

Some people call Cormorants *Piranha Birds*. The problem is particularly severe in the Great Lakes Area. In the early 1970s there were only around 70 pairs of cormorants in Michigan, and now, the birds are everywhere. On just two islands, 11,000 cormorants have been counted. Cormorants have destroyed the fishing industry in that area. Resorts are closing and fishing guides have moved on. A while ago you couldn't get a cabin and now it's a ghost town.

There are several things that are happening beyond losing fish. The islands, once full of trees are denuded. Where Cormorants have made rookeries the nesting areas for other birds have been wrecked. Other species of birds are forced out. Once an area is stripped of plant life and fish, the Cormorants move.

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Hoyer and Canfield, of the University of Florida, found that all trophic state variables in the Florida Lakes they studied were correlated to bird abundance. Total phosphorus concentrations were most strongly correlated. They did not look at bacteria, perhaps because of the difficulty sampling and analysis. They suggested that chlorophyll a, the green pigment in eutrophic water (due to the algae), should be used as an indicator of aquatic bird populations. The annual phosphorus load due to the bird population on the lakes averaged 6%, but the values for individual lakes varied from 1% to 25%. Four lakes with Cormorants were over 25%.

Cormorants occur more commonly in lakes, like Lake Tallavana, that have low aquatic macrophyte coverage. Lakes with better coverage have more species that utilize aquatic plants, like ring-necked ducks. When the aquatic plants are removed the population shifts to Cormorants. Lakes with a high nutrient load, eutrophic lakes, also had more birds. Eutrophic lakes have more primary production, more fish for the Cormorants to consume.

Other studies from around the world found that the Total Phosphorus in bird droppings constituted about 27% of the total phosphorus loading to the lake from all sources. Based on the behavior of the birds, their high metabolic rate, especially for Cormorants, and the paucity of forage in the surrounding urban area, they estimated that 87% of the phosphorus in bird droppings originated from food items in the lake and represented internal cycling. They found that birds might potentially increase the productivity of water bodies by changing the form, rate, and pathways of cycling, and physical compartment of phosphorus. Still other studies found that the average contribution of birds was estimated to be 17% and 32% for external and internal loading respectively. The most significant species for external loading were the Gulls. The Cormorant and Heron were more responsible for internal loading.

Sincerely,

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