

## Utilizing Re-Bind Technology in Concrete to Protect the Osprey Population



### **Introduction:**

The osprey population in the United States is facing a major challenge due to an unlikely culprit: baling twine. These magnificent birds of prey are native to North America and rely heavily on natural nesting materials, such as sticks and branches. However, the increasing use of synthetic materials like baling twine has created a serious problem for the ospreys.

One of the most critical problems with baling twine is that it is strong enough to strangle and entangle osprey chicks in their nests. According to a study conducted by the Wildlife Center of Virginia, over 61% of ospreys who died prematurely were killed by entanglement in man-made materials such as fishing line, baling twine, and plastic bags. These numbers are staggering and indicate that action must be taken expeditiously to protect the declining osprey population.

Another adverse effect of baling twine on ospreys is that it disturbs their natural nesting process, which can result in decreased breeding success, and in the worst cases, the abandonment of the nest entirely.

Bailing twine is typically made from synthetic materials, which can lead to severe injuries and even death due to the material's inability to decompose.

Furthermore, the use of synthetic nesting materials disrupts the natural balance of the ecosystem by introducing non-native materials into the environment and competing with the natural materials that ospreys rely on for nest building. The introduction of these synthetic materials can lead to many problems, such as an increase in predation and decreased genetic diversity in the osprey population.

### **Re-Bind**

The use of recycled materials can be a viable solution to reduce the prevalence of plastic waste in outdoor areas, thus, aiding the osprey population. Re-Bind is a 100% recycled multifilament material that can be added to concrete to not only prevent the ospreys from using the material in nests, but also provides value-added performance to concrete.

Concrete is an essential material used in various construction projects because of its strength, durability and versatility. However, despite its numerous benefits, concrete is incredibly prone to cracking, and this can cause significant issues in the structure it supports. Cracking in concrete may be due to various factors such as shrinkage, temperature changes, and external forces.

Concrete cracking can be due to numerous factors, including drying shrinkage, thermal contraction, subgrade settlement, overload and impact loading. Drying shrinkage is the most common cause of concrete cracking, where the concrete surface loses moisture and shrinks, causing the surface to crack. Thermal contraction occurs when there is a change in temperature in the concrete causing it to contract and expand, leading to cracks. Overload and impact loading can occur against a concrete structure, and the force of these loads can cause cracking.

Concrete mix design can play a significant role in reducing concrete cracking. The mix design includes the type, amount, and ratio of the aggregates, cement, and additives used. The mix design attributes dictate the concrete's strength, workability, and other factors like permeability and durability. Properly proportioning the materials can reduce the chance of cracking due to shrinkage.

Re-Bind increases resiliency to cracking and helps prevent shrinkage cracking in concrete, mortar, and grout mixes. Re-Bind is designed for use with conventional and high-performance concrete. In addition to providing performance benefits to concrete, Re-Bind is helping save the American Osprey population.

### **Conclusion:**

In conclusion, the use of bailing twine is a severe problem that is causing the decline of the osprey population in the United States. The detrimental effects of bailing twine on the ospreys and the ecosystem as a whole require immediate action from wildlife conservationists, individuals, and policymakers. Using a recycled material, such as Re-Bind, that can be added to concrete after use, will protect the osprey population while simultaneously improving concrete. Only through concerted efforts can we hope to reverse the decline of the osprey population in the United States and maintain the biodiversity of our natural world.

**References:**

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