

**FEATURES**



Photo: Transpo

*Catch basin inserts and filters to protect surface waters*

**By Roberta Baxter**

Municipalities around the country are increasing their use of catch basin inserts to treat stormwater before it enters surface waters. Part of the increase stems from requirements to meet federal and state regulations and part because it's the right thing to do. The ability to capture trash, sediment, and pollutants such as oil, grease, and metals increases the quality of the environment for everyone but is especially important for marine habitats.

A multitude of companies are manufacturing products for the catch basin filtration market. Whether your need is for sediment removal, mitigation of pollutants, or trash capture, you can find a product to meet your needs.

Things to consider when buying a system are as follows:

- Initial cost, as well as maintenance and replacement costs
- Type of filtration needed
- Retrofit or new project
- Type of maintenance that will be required
- Space available for filtration devices

## **Degreasing in Florida**

As environmental section supervisor for the National Pollutant Discharge Elimination System in Brevard County, John Royal has a big stake in preventing oil spills from county facilities into waterways. Royal says the county had used a variety of methods to catch hydrocarbon contaminants, including pads and socks. Recently, the county has switched to baskets manufactured by EcoSense International of Merritt Island, FL. The oil filter baskets installed in grated inlets seem to be working well.

Royal notes that the socks and pads that the county had tried in the past were round and floated on the water, so there was limited surface area and contact with the filtering media. The EcoSense filters ensure that water passes through the media, removing a higher percentage of the pollutants.

EcoSense baskets are designed to be nonclogging. Debris such as leaves and other materials are diverted away from the filters. The Clean Pass Over Flow acts as a peak flow bypass but captures lightweight material and allows water through. After first flush, the system catches up and filters the rest of the water. Tests have shown a total suspended solids removal greater than 95%, and hydrocarbons, metals, phosphorus, nitrogen, and volatile organics also are removed.

Filters are cleaned by vacuuming, and because there is no standing water, mosquito and other pest breeding is eliminated. Filter replacement is recommended after six months to two years.

Brevard County is under a municipal separate storm sewer system (MS4) permit, so all county facilities were evaluated for compliance. A list of programs was devised to meet the requirements, including improving the quality of stormwater runoff.

The EcoSense filters were installed at county facilities and many had to be custom built. "We can't ask the public to control pollutants if we aren't doing our part," Royal notes. In the past, the county set up automated samplers to test influent and effluent and found that the filters work well. "They also are cost-effective—fairly reasonable," Royal adds.

Now the county basically monitors the filters by eye. Of course, if there is a known oil spill from a truck maintenance yard or similar incident, that filter will be changed immediately. For some areas, the runoff is from parking lots, and those filters can have a longer maintenance cycle. In between replacements, loose debris such as leaves and sediment is removed from the filters by vacuum trucks.

EcoSense baskets also were installed to eliminate pollutants going into Wagner Creek and from there to the Miami River. The creek is a test basin for the project. Miami was proactive on this project, not waiting for a total maximum daily load (TMDL) to be developed, says Francis Mitchell, assistant director of public works for Miami-Riverside.

Two hundred and fifty wire baskets with a 25-gallon capacity have been installed as well as 400 grated curb inlets that have been retrofitted. The baskets collect debris and filter stormwater from a highly urban area, with commercial activity and many warehouses. The cost for the baskets and grates was about \$200,000, and about five retrofits could be installed by a crew each day.

The maintenance has been performed on a four-month schedule. The retrofits retained 90 pounds of trash (such as bottles and leaves) every four months. So far, they have collected close to 16 tons of trash from 250 retrofits.

To handle the maintenance, Miami bought two mini vacuum trucks, also from EcoSense. In fact, when crews saw how easy the mini trucks were to operate, they were requesting them every day.

The City of Rockledge, FL, has installed EcoSense filters at its maintenance compound. Ken Poole, public works director, says the filters were installed at the breakdown area, so any oil and grease from a vehicle will wash into and be captured by the filters. The town also has added the filters to a washdown area where garbage trucks are washed daily. According to Poole, the filters have worked so well that the washdown area has been expanded to handle two trucks at a time.

After passing through the filters, runoff from the area drains into a large catch basin that holds it so that it can be slowly filtered by the sandy soil. A pipe conduit leads to another dry area, but Poole says he has never seen such an extreme storm that the sandy soil can't absorb the runoff.

The Rockledge Public Works Department has created a unique way of determining when the filters need to be replaced: It weighs them. Poole says crews use a big fish scale and hook. The filters are attached to the hook, and if the weight is heavy enough, new ones are installed. The department is experimenting to determine the critical weight. The old filters are disposed of with the trash from vehicle maintenance. In the washdown area, filters have been lasting about three months.

The city has developed a proposal for grants to include hydrocarbon filtering for stormwater runoff into the Indian River Lagoon. The requirements mean that the stormwater flow cannot be hampered but must remove a high percentage of hydrocarbons. The drainage area is a 10-acre basin of mostly residential properties. Poole is hoping to find or devise a rectangular filter with a metal framework and hook so he can continue the method of weighing the filter to know when replacement is needed.

*Roberta Baxter specializes in science and technology topics.*

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