

Memorandum



Date: March 1, 2013
To: Key West Bight Board
Cc: Marilyn Wilbarger
From: Mark Tait
RE: Biodiesel

Board member Dan Probert requested that staff looked into the possibility of switching from regular dyed diesel currently sold at the Key West Bight Fuel Dock to Biodiesel for sale to vessels that visit the marina. Staff has investigated biodiesel via the Web, fuel suppliers and other marinas and come to the following conclusions.

Pros:

- Biodiesel is considered non-toxic.
- Biodegradable.
- Cleaner exhaust above and below deck.
- Higher safer flashpoint vs. diesel
- Superior lubricity improves engine life.

Cons:

- Plugged fuel filters.
- Strips scale from fuel tanks.
- Eats rubber gaskets in older engines.
- Not compatible with plastic fuel tanks.

- Breaks down during long term storage.
- Thickens in cold weather.
- Mandates additional separate storage tanks.
- Vessels cannot switch back and forth between diesel and biodiesel.

While the advertised advantages of biodiesel sound great and may be positive for vehicles the same does not seem to be true for vessels. The main problem is that if you are going to use biodiesel you need to always use biodiesel. While it appears that any diesel engine can burn biodiesel there is a certain amount of pre maintenance and continuing maintenance that needs to be performed to switch from diesel to biodiesel.

Biodiesel can breakdown rubber gaskets in older engines. Those need to be replaced as needed.

Biodiesel is a superior cleaning agent. Fuel tanks in vessels using regular diesel form scale on their sides. Scale is a combination of algae and other types of growth that adhere to the fuel tank sides but do not interfere with the operation of the engine. When biodiesel is introduced to a regular diesel fuel system it strips the scale growth from the fuel system which clogs the fuel filters time after time until the fuel system is purged of the scale. Once all the scale is removed the continued use of biodiesel does not clog the filters and operation of the vehicle or vessel is normal. Biodiesel has worked with the Key West City buses. But at first when the City switched over from diesel to biodiesel DOT had to literally have a maintenance vehicle follow the buses up the Keys to replace the filters as needed. Once all the scale was removed the buses operated normally.

The problem with vessels is very few if any other marinas sell biodiesel. McKenzie Petroleum our fuel supplier delivers fuel to over 30 marinas in the Keys. None of those marinas buy or sell biodiesel. So a normal scenario would be a vessel would come to our fuel dock and if we did sell them biodiesel the vessel would probably encounter clogged fuel filters after they left our marina. This could or could not be a big deal depending on when the filters clogged. Biodiesel would work well for some local operators that could continue to use it year round after the initial cleansing period. But all others which are the vast majority of our fuel customers would probably encounter problems with their engines / fuel systems that we might be held accountable for.

There are also other disadvantages that can be discussed such as delivery, storage, shelf life and availability but the main concern is the filter clogging problem.

Staff recognizes that biodiesel may be the wave of the future but staff has concerns that the development of biodiesel technology at this time does not fit with the marine vessel environment. At this time staff does not recommend switching from the regular diesel currently being used to biodiesel unless the biodiesel can be stored

and sold separately from the regular diesel. Staff does not recommend adding additional storage tanks and fuel dispensers for biodiesel as they do not believe it would be economically feasible. Staff will continue to monitor development of biodiesel for possible use in the future.