

Executive Summary-Golden Alaska

Updated March 20, 2018

The f/p Golden Alaska, a 305 ft. fish processing vessel, first started using the Fitch Fuel Catalyst in May 2014. Upon approaching the end of Fitch's 10,000 hour warranty period, the Golden Alaska ordered and installed a replacement catalyst core in January 2016. The installation treats the fuel in a 5300 gallon day tank with canister style unit capable of treating 600 gallons of fuel per hour mounted after twin fuel centrifuges. This treated fuel can then be used by all of the ship's propulsion and generator engines as well as the 300hp boiler. In the summer of 2017, prior to commencing fishing, a larger model was installed to support added load on the ship's boiler due to installation of a larger fishmeal processor that replaced a small one.

Over the 313 operating days in 4 successive seasons transferring Pollock from the catcher boats to the mother ship, the Golden Alaska recorded fuel savings of 90,989 gallons (approx. 290 gallons per day). The Golden Alaska is powered by twin MAK 6M551 6-cylinder engines rated at 2200hp each. It has primary and auxiliary generators powered by Caterpillar 3512 and 3508 engines. Before upgrading to the larger catalyst results dropped by half to the 5% range. That reduction has now been reinstated to the 10% range by virtue of the larger unit's ability to support the new fuel demand of the vessel's boiler which impacted all other loads. As part of its ongoing monitoring program, the Golden Alaska recorded the following results which have been converted† from cubic meters to gallons per day:

Without Fitch Treated Fuel

\*For comparison purposes, based on 28 readings over 28 days, a baseline was established using fuel not treated with the Fitch Fuel Catalyst. Average daily fuel consumption of the main engines was measured to be 3,300 gallons/day.

With Fitch Treated Fuel

\*Average daily consumption of fuel treated with the Fitch Fuel Catalyst was reduced to 3,018 gallons/day in 2014B season, an improvement in efficiency of 8.51%(282gpd) from the baseline over a period of 64 days.

\*During the 2015A season, the Golden Alaska recorded fuel consumption of 2,930 gallons of fuel per day or a reduction of 370gpd(11.21%) from the untreated baseline. This finding was based on a 61 readings over 61 days. In the subsequent 2015B season fuel consumption increased slightly to 3,089 gallons of fuel per day or a reduction of 211gpd(6.42%) from baseline over a 97 day observation period..

\*After installing a replacement catalyst core prior to commencing the current 2016A season, average fuel consumption of 2,949 gallons per day a reduction of 351gpd(10.66%) from the 2014 baseline was observed.

\*Prior to commencing the 2016B season the vessel's single fishmeal processor was replaced with two larger ones. This appeared to affect the performance of the FHD10(600gph) Fitch unit. Fuel savings dropped to 5% range during the following 2 seasons (2016B and 2017A).

\*Prior to commencing the 2017B season the FHD10 cannister was replaced with an FHD15(900gph) unit in an attempt to provide more fuel treatment to support the added load on the ship's boiler due to the new fishmeal processors. 2017B results were inconclusive due to unrelated engine problems making it impossible to get meaningful comparison data.

\*The benefit of the larger Fitch unit was confirmed in the 2018A season where fuel savings on both the boiler and the main engines returned to previously high levels, combined in excess of 500 gallons per day.

\*In addition, there has been a clear reduction in smoke and a significant reduction in carbon build up which should translate into reduced engine maintenance and unscheduled downtime.



305 foot long factory processor

† conversion factor of 264 gallons per cubic meter applied

*“There has been a clear reduction in smoke and a significant reduction in carbon build up which translates into reduced engine maintenance and unscheduled downtime.”*

Mark Purdue, Chief Engineer, Golden Alaska Seafoods, LLC



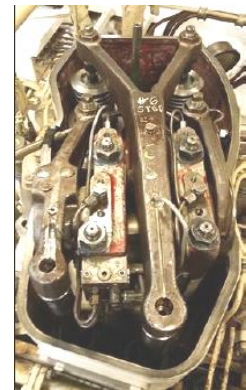
Bow of Vessel



Twin MAK 2200Hp engines

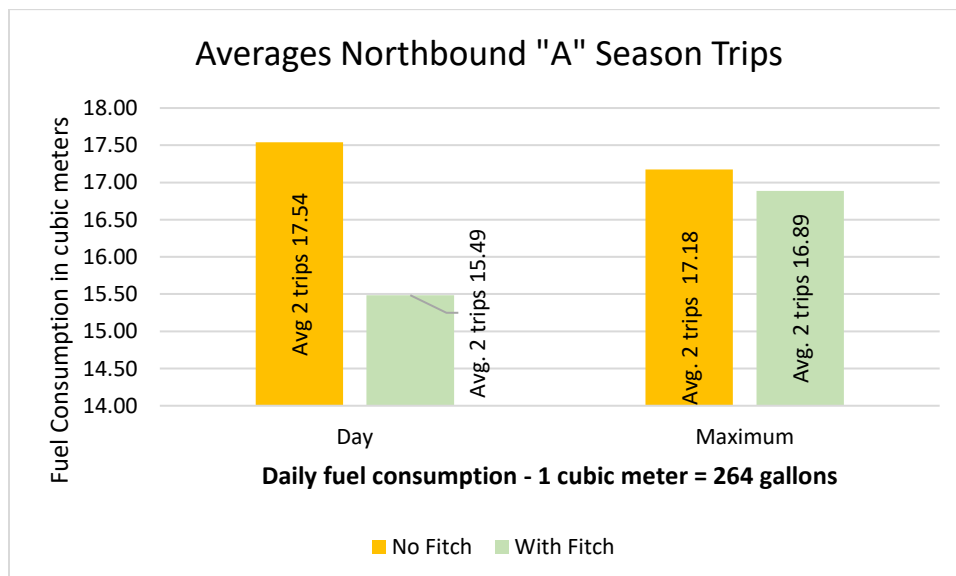


Fitch FHD unit

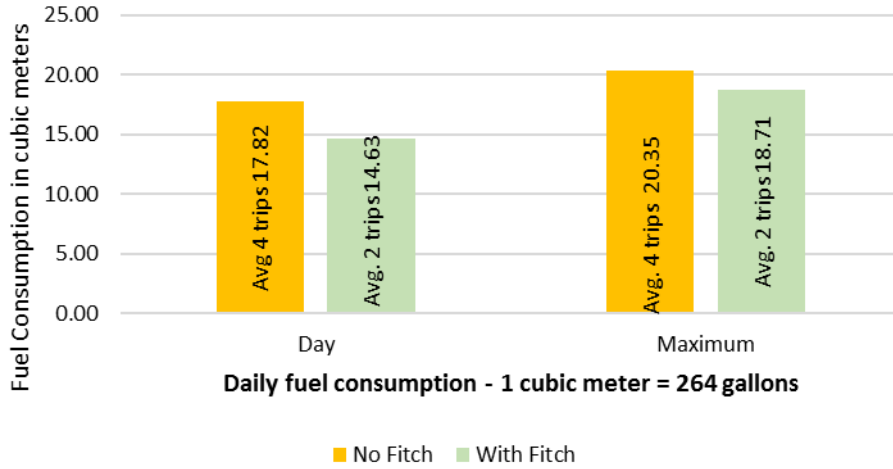


Clean cylinder

**Graphical Presentations of Data provided by Chief Engineer over 8 operating seasons in Bering Sea**



### Averages Northbound "B" Season Trips



### Fuel Consumption of main engines - f/p Golden Alaska over 7 Bering Sea, Alaska pollock seasons (24 hour operating days) since 2014B with and without the Fitch Fuel Catalyst

