Production to be Launched in Europe of Astaxanthin for use in Fish Feed

New feed additive colour pigment, called Panaferd, has been approved by the U.S. Food and Drug Administration (FDA) for use in salmon and trout

## PRESS RELEASE

Nippon Oil Corporation (President: Shinji Nishio, hereinafter "Nippon Oil") has decided to start production in Europe during 2010FY of this color additive, containing astaxanthin and designed to be blended into fish feed.

Astaxanthin is the red pigment found in the shells of crustaceans such as shrimps. Certain fish, like red sea bream and salmon that eat such crustaceans, also contain this pigment. Apart from use in health foods, astaxanthin is also blended into feedstuff for farmed fish (e.g. salmon) with the aim of improving the color of fish flesh.

Nippon Oil have developed Panaferd using their unique manufacturing method based on microbial fermentation; this has made it possible also to reduce significantly the production costs, in comparison to other natural products. Up till now, Nippon Oil have been outsourcing the production of Panaferd to a domestic manufacturer and exporting it to European and Chilean clients who blend the product into farm fish feed.

Nippon Oil have recently obtained the approval of the United States Food and Drug Administration (FDA) to use Panaferd as a color additive and are now able to supply the product for use in feedstuff's for salmon that are raised for export to the United States market. The United States are one of the major nations where large amounts of farm-raised salmon are consumed. Now, because it is strongly believed that sales of Panaferd will increase, NOC have decided to start large-scale production of the pigment in Europe during 2010FY in Europe, which is a major market for farmed fish. Through this production, Nippon Oil is aiming to achieve sales of 2 billion yen by 2015FY.



Panaferd (astaxanthin) designed to be blended into farmed fish feed.



Flesh from salmon that had been raised on feedstuff containing Panaferd for the purpose of enhancing the colour.