



# Safe Harbor News

BROUGHT TO YOU BY MICRO ANALYTICAL SYSTEMS, INC.

WINTER 2008

## About This Issue

Welcome to the first issue of Safe Harbor News. This newsletter will provide information about our company and share the insights we have gained from the extensive mercury testing we are conducting on seafood in the U.S. and abroad.

Over the past three years, Micro Analytical Systems, Inc., (MASI) has conducted more than 50,000 mercury tests on seafood using proprietary new technology that is both rapid and highly accurate, with sensitivity close to 10 parts per billion. The testing has been conducted as part of the process to certify seafood for sale under the Safe Harbor® brand. As a result of this extensive testing, both in the U.S. and abroad, MASI has compiled a data base profiling the issue of mercury in seafood that is larger and more current than that developed by any other company or government in the world.

The results to-date indicate the seafood mercury problem is becoming more acute than most have thought. While in some cases our testing results confirm the data on mercury in seafood reported by the FDA and EPA, in many other cases our testing shows that much of the government data are out of date and inadequate for consumers and health professionals to use in making informed decisions about eating seafood.

In 2007 alone, MASI conducted more than 30,000 mercury tests on 47 species

*continued on page 2*

# Mercury Levels Rising In “High-Mercury” Fish

## Halibut, Tuna and Swordfish Trending Higher in Mercury

In order to provide a current snapshot of the trends among certain fish species known to be higher in mercury, we are sharing data from MASI mercury testing conducted during November and December 2007.

MASI testing (Chart 1) reveals that some species of these higher-mercury seafood – particularly swordfish and halibut – contain higher mercury levels than FDA data indicate. Two hundred and seven swordfish were tested at levels above the FDA action level of 1 part per million (ppm), or 42 percent of all swordfish tested. The mean mercury level for swordfish was 1.006 ppm, meaning that, on average, swordfish came in above the FDA action level. One swordfish was tested at 4.9 ppm, nearly five times the FDA action level. This is particularly startling as MASI actively seeks swordfish from regions where fish are traditionally lower in mercury content.

### Highlights from MASI Testing

After conducting tens of thousands of tests for mercury in seafood, MASI has drawn the following conclusions:

- 1 Mercury levels in some fish species traditionally considered high in mercury content are testing at higher mercury levels than expected (see this page).
- 2 Mercury levels can vary significantly among fish in the same species.
- 3 A significant number of fish with high mercury content – often above the FDA action level – is being sold to consumers in supermarkets (see page 2).
- 4 Fish traditionally considered to have low mercury content sometimes contain higher levels of mercury (see page 3).

The data are troubling for other species as well. The mean mercury level for halibut was recorded at 0.377 ppm, well above the FDA-reported mean of 0.252 ppm. Yellowfin tuna mercury levels were, on average, 0.427 ppm – considerably higher than the FDA-reported mean of 0.325 ppm.

Overall, the testing results reveal that FDA-provided data do not always present an accurate picture of current mercury levels in seafood. This is understandable since much

of the FDA data is old – some data cited are from as far back as 1978.

Unfortunately, this out-of-date information can undermine the current recommendations on seafood consumption provided to consumers by medical and health experts and institutions. It is clear that, in many cases, consumers need more current data to make truly informed decisions for themselves and their families about consumption quantity and frequency with regard to many species of seafood.

## 1. Mercury Content of Fish Considered Higher in Mercury

	MASI Data - 2007 <sup>1</sup>							FDA Data <sup>2</sup>			
	Mean	Median	Max	Samples	Over 1 ppm	% Over 1 ppm	Mean	Median	Max	Samples	
<b>Albacore</b>	0.344	0.325	0.762	50	0	0%	0.357	0.355	0.820	26	
<b>Black Cod</b>	0.318	0.282	1.208	419	3	1%	0.220	N/A	0.700	102	
<b>Chilean Seabass</b>	0.265	0.198	1.551	88	1	1%	0.386	0.303	2.180	40	
<b>Grouper</b>	0.298	0.232	1.504	114	0	0%	0.465	0.410	1.205	43	
<b>Halibut</b>	0.377	0.261	2.079	552	27	5%	0.252	0.200	1.520	46	
<b>King Salmon</b>	0.055	0.036	0.382	350	0	0%	NP	NP	NP	NP	
<b>Opah</b>	0.584	0.443	3.948	55	4	7%	NP	NP	NP	NP	
<b>Swordfish</b>	1.006	0.888	4.915	495	207	42%	0.976	0.860	3.220	618	
<b>Thai Snapper</b>	0.318	0.258	0.850	84	0	0%	NP	NP	NP	NP	
<b>Yellowfin Tuna</b>	0.427	0.339	2.462	473	26	5%	0.325	0.270	1.079	91	

NP - data not provided by the FDA. <sup>1</sup>MASI data taken from testing conducted by MASI during November and December 2007 in the U.S. and abroad. <sup>2</sup>FDA data taken from “Mercury Levels in Commercial Fish and Shellfish” at [www.cfsan.fda.gov/~frf/sea-mehg.html](http://www.cfsan.fda.gov/~frf/sea-mehg.html).

# Supermarket Tests Report Higher Mercury Levels

## Random Tests Find Many Fish Exceed FDA Action Level

To examine the mercury issue in terms highly relevant to consumers, MASI recently began testing fish purchased randomly from supermarket fish cases in leading supermarkets in Northern California and South Florida.

MASI is focusing on testing fresh samples of three popular species known to be high in mercury – swordfish, halibut and ahi tuna.

The results to-date, based on tests conducted during November and December 2007, indicate it is often a case of “buyer beware,” at least with these species (Chart 2). MASI has found that a high percentage of the swordfish being offered to consumers contains mercury levels greater than the FDA action level of 1 part per million (ppm), while the ahi and halibut run higher than expected and even, on occasion, exceed the 1 ppm level.



With a 1.630 ppm mean mercury content, the average swordfish in the supermarket test contained mercury content 63 percent above the FDA action level. Eighty percent of swordfish tested in the in-store testing program contained mercury levels above 1 ppm (33 of 41), with 5 percent of tested ahi tuna and halibut reported above the FDA action level as well.

While sample sizes in this test are fairly small so far, MASI findings show that we are largely within the range we would project based on the testing of these species MASI has conducted in fish processing plants this year, with swordfish being a

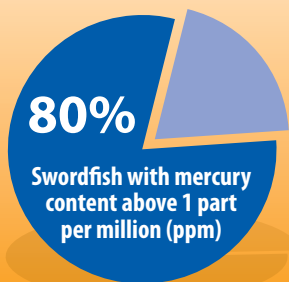
notable exception. MASI plans to continue the store-testing program for several months.

Additionally, MASI testing reveals that these species contain mean mercury levels above the FDA-provided data. Mean mercury content in swordfish as recorded by MASI was 67 percent above the FDA-provided mean of 0.976 ppm, and halibut was 25 percent higher in mercury content than indicated by FDA-provided data. Ahi tuna, or yellowfin, contained mean mercury levels 47% above the FDA-provided mean.

Seafood tested in this program was purchased directly from supermarkets at intervals of three days or more, to allow for product turnover, and tested by MASI within 24 hours of purchase. A total of 142 samples of tuna, swordfish and halibut were randomly and anonymously purchased from 19 leading supermarkets in Northern California and South Florida.

### Swordfish Over FDA Mercury Limit

On average, four out of five swordfish tested by MASI from supermarkets contained mercury content above the FDA action level.



## 2. Mercury Content of Fish Sold in Supermarkets

	MASI Data - 2007 <sup>1</sup>						FDA Data <sup>2</sup>			
	Mean	Median	Max	Samples	Over 1 ppm	% Over 1 ppm	Mean	Median	Max	Samples
<b>Ahi Tuna</b>	0.477	0.476	1.215	63	3	5%	0.325	0.270	1.079	87
<b>Swordfish</b>	1.630	1.358	3.654	41	33	80%	0.976	0.860	3.220	618
<b>Halibut</b>	0.314	0.205	1.695	38	2	5%	0.252	0.200	1.520	46

<sup>1</sup>MASI data taken from testing conducted by MASI during November and December 2007. <sup>2</sup>FDA data taken from “Mercury Levels in Commercial Fish and Shellfish” at [www.cfsan.fda.gov/~frf/sea-mehg.html](http://www.cfsan.fda.gov/~frf/sea-mehg.html).

### About This Issue

*continued from page 1*  
of fish and shellfish. From these tests we have selected interesting and insightful data and presented it here. We include our findings in three important areas: mercury levels in seafood generally considered lower in mercury; mercury levels in seafood known to have higher levels of mercury; and recent random testing of fresh seafood sold in supermarkets in one city.

**“Much of the government data [about mercury in seafood] are out of date and inadequate for consumers and health professionals to use in making informed decisions about eating seafood”**

We believe that consumers wish to enjoy seafood more frequently and many will do so if given information that allows them to purchase it with greater confidence. As such, we are making this data available to inform the public about the latest trends in mercury and seafood. Our testing is ongoing and we will update our findings periodically.

Please feel free to contact me if you have questions about the information we have presented here.

**Mal Wittenberg**  
CEO, Micro Analytical Systems, Inc.  
(415) 971-2052

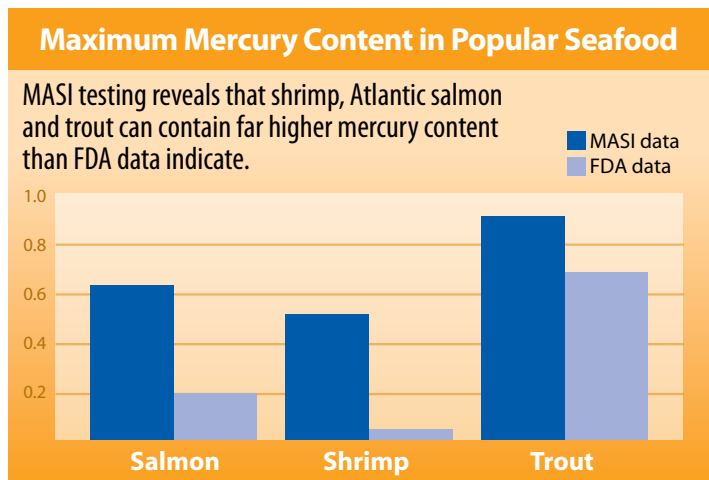
# Recent Testing Reveals “Lower Mercury Seafood” Isn’t Always Low

## Mercury Levels Within Fish Considered Low In Mercury Can Vary Dramatically

In reviewing the data collected by MASI from mercury tests conducted during 2007, it quickly became apparent that some species generally considered to be low in mercury are not always so. While these species often test at very low levels of mercury, there are many exceptions.

Data provided in Chart 3 reveals that even low-mercury fish can occasionally be found containing higher levels of mercury, including such popular species as salmon, tilapia and crab. In a number of these cases, MASI also found that the mean is significantly higher than the government cites.

For example, MASI recorded a trout sample with a mercury



content of 0.911 parts per million (ppm), well above the nominal mercury content generally expected of trout. Even shrimp – which the FDA and EPA recommend as a low-mercury seafood alternative in their 2004 joint advisory – contains mercury levels as high as 0.5 ppm.

Moreover, MASI testing shows that mercury levels can vary dramatically among fish in the same species. These findings reinforce the conclusion that the only way a consumer can make a truly informed choice is to have information about the mercury content of each fish, and not rely on generalized recommendations.

### 3. Mercury Content of Fish Generally Considered Low in Mercury

	MASI Data - 2007 <sup>1</sup>				FDA Data <sup>2</sup>			
	Mean	Median	Max	Samples	Mean	Median	Max	Samples
<b>Catfish</b>	0.014	0.004	0.261	309	0.049	ND	0.314	23
<b>Crab</b>	0.092	0.070	0.746	246	0.06	0.03	0.61	63
<b>Prawns</b>	0.041	0.029	0.214	62	NP	NP	NP	NP
<b>Salmon, Atlantic</b>	0.056	0.032	0.632	1110	0.014	ND	0.19	34
<b>Salmon, Sockeye</b>	0.040	0.025	0.732	681	NP	NP	NP	NP
<b>Scallops</b>	0.011	0.001	0.203	203	0.05	N/A	0.22	66
<b>Shrimp</b>	0.049	0.027	0.506	97	ND	ND	0.05	24
<b>Tilapia</b>	0.033	0.014	0.286	517	0.01	ND	0.07	9
<b>Trout</b>	0.051	0.032	0.911	439	0.072	0.025	0.678	34
<b>True Cod</b>	0.078	0.030	0.472	373	NP	NP	NP	NP

NP - data not provided by the FDA, ND - mercury concentration below detection level (Level of Detection (LOD)=0.01ppm). N/A - data not available. <sup>1</sup>MASI data taken from testing conducted by MASI during 2007 in the U.S. and abroad. <sup>2</sup>FDA data taken from “Mercury Levels in Commercial Fish and Shellfish” at [www.cfsan.fda.gov/~frf/sea-mehg.html](http://www.cfsan.fda.gov/~frf/sea-mehg.html).

## About Micro Analytical Systems, Inc.

Micro Analytical Systems, Inc. (MASI) is the pioneer of the world’s first rapid, large-scale mercury-testing process for seafood. MASI currently tests more seafood for mercury each year than any other company or government in the world. MASI provides consumers with seafood tested and certified to be among the lowest in mercury available under the Safe Harbor Certified Seafood® seal. Founded in 2002, MASI is headquartered in San Rafael, Calif. For more information, visit [www.safeharborfoods.com](http://www.safeharborfoods.com).

In 2007, MASI conducted approximately 30,000 mercury tests on 47 species of seafood in fish processing facilities in Los Angeles; Sacramento; Miami; Boston; and Santiago, Chile. The testing was conducted with MASI’s Mercury Measurement Analyzer, which uses advanced technology to rapidly measure the amount of mercury in fish. An operator in the processing plant takes a small sample from a piece of fish and inserts it into the testing unit, which quickly analyzes the fish for mercury content. To ensure accuracy, the MASI mercury analyzer is regularly calibrated for accuracy using reference material checked against standards set by the National Institute of Standards and Technology.

The accuracy of MASI’s technology has been confirmed in blind test comparisons conducted by several of the nation’s leading retailers.

Seafood tested and certified by MASI to be lower in mercury is now sold under the Safe Harbor Certified Seafood® at several supermarket chains across the United States.

company	business contact	media contact
<p>Micro Analytical Systems, Inc. (877) 878-MASI <a href="http://www.safeharborfoods.com">www.safeharborfoods.com</a></p>	<p>Mike Bean (877) 878-MASI x. 107 <a href="mailto:mike.bean@masi-email.com">mike.bean@masi-email.com</a></p> <p>Mike Wittenberg (877) 878-MASI x. 108 <a href="mailto:mike.wittenberg@masi-email.com">mike.wittenberg@masi-email.com</a></p>	<p>Matt Stewart (415) 289-7575 <a href="mailto:mstewart@contextmarketing.com">mstewart@contextmarketing.com</a></p>