

# Lobstermen precautions for shop work

Last spring, as a guest of the Seacoast Mission, I had the pleasure of visiting lobstermen in the Maine villages of Matinicus, Isle au Haut, Swan's Island, and Frenchboro aboard the Sunbeam. During our discussions, I offered to measure the airway health of anyone interested.

The fishermen exhaled forcibly and as long as they could into a handheld digital spirometer and, after four to six tries, the instrument yielded the results in graph form.

The measurements showed that many lobstermen scored below the predicted value for forced vital capacity, which is a measure of lung health, and peak flow, which is a measure of airway health.

In fact, one lobsterman scored as having a "serious constriction" of his airway.

## Indoor exposure

Several small studies at the Harvard School of Public Health confirm that when lobstermen work on their gear indoors, they are exposed to a dangerous mix of

particles, fumes, solvents, chemicals, and, yes, endotoxin, which is produced by Gram negative bacteria present on dried rope.

Lobstermen know this full well. One who visited the Sunbeam volunteered that he had connected his shop vac to the drain of a small sink. This rig ensured that the wood dust he generated while sanding buoys would be sucked away from his breathing zone and his workshop environment.

Another lobsterman on Isle au Haut said he used latex house paint on his buoys to avoid exposure to the solvents in oil-based buoy paint.

Fishermen on Matinicus mentioned headaches and irritated eyes and noses after using paints with "high VOC" (volatile organic compounds) ratings and UV protectants. These solvent exposures can be harmful to the central nervous system over time.

The respiratory system consists of nasal passages, the trachea, bronchial tubes, and the lungs, which are equipped with miniature air sacs called alveoli that are designed to exchange carbon dioxide for oxygen.

The upper respiratory tract is designed to trap and filter harmful particles and chemicals. Mucus and cilia (small hairs) in the nasal passages above the airways intercept particles that are larger than 2.5 micrometers.

However, particles smaller than 2.5 micrometers, such as fine dust, fumes, solvents, and endotoxin, can penetrate into the lower respiratory tract (see figure). The smaller the particles, the deeper they can go into the lung.

Oil-soluble droplets seem to penetrate more deeply than water-soluble droplets. Fine and ultrafine particles and droplets that penetrate into

the lungs wind up in the alveoli where they can, according to recent research, diffuse across the cell membrane and end up in the blood stream.

Once in the blood stream, they can impact numerous other organs such as the heart, liver, kidney, blood, and brain.

## Burning wood

This year with fuel prices high, many people will be burning wood. Whether in the workshop, in the house, or both, the dust and soot from the wood-burning process can add to the body's burden of particles and chemicals.

The New York Center for Agricultural Medicine and Health has produced a public service announcement called "Wood Stove/Respiratory Hazards" with advice to help those who burn wood reduce respiratory hazards.

Suggestions include the following: burn only seasoned hardwoods such as oak, hickory, and maple; do not burn pine, wet, or newly cut wood; do not burn painted, treated, or glued wood; and do not burn gift wrap.

## Smoking

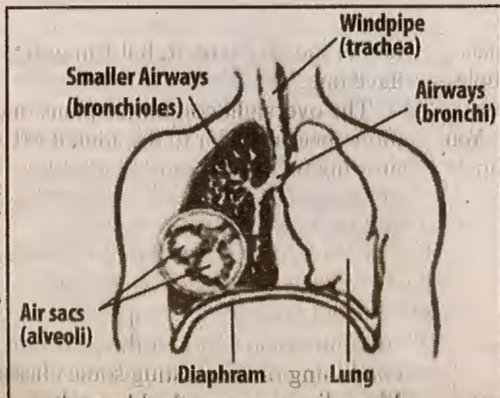
Another insult to the lungs comes from smoking. I know, you've heard plenty about the need to quit smoking. But here's a different take on that advice.

Dr. Xiping Xu of the Harvard School

of Public Health has published research showing that long-term exposure to high levels of particulates and sulfur dioxide (SO<sub>2</sub>) were associated with significantly reduced pulmonary (lung) function both in people who smoked and in people who never smoked.

Xu also noted that both total suspended particles and SO<sub>2</sub> are associated significantly with decreased pulmonary function, and his research "demonstrated synergistic relationships with smoking."

This means that smoking is not only bad for your lungs on its own. When combined with other indoor pollutants, smoking makes things much worse. So, there's one more reason to try to quit. ■



A schematic diagram of the lower respiratory system.

## FISH SAFE:

- Ventilate your work space and work under a hood if possible.
- Use a low VOC latex paint or get fitted for an organic vapor cartridge respirator.
- Keep dust to a minimum.
- Don't let small children play or work in the workshop.
- Burn only seasoned hardwoods, not trash, in your wood stove.