

EPA Guide To R/V Lake Guardian



Welcome To The Lake Guardian

Today you are going to tour the U.S. Environmental Protection Agency's (EPA) surveillance and monitoring vessel, the **Lake Guardian**, operated by EPA's Great Lakes National Program Office.

This is a working ship, 180-ft long and 40-ft wide, with state of the art navigational, laboratory and mechanical equipment. The ship was acquired by EPA in 1988 and underwent extensive reconstruction. It was dedicated in May 1991 and immediately went into service as a floating laboratory to fulfill its mission of gathering data about the physical, chemical and biological conditions of the Great Lakes.

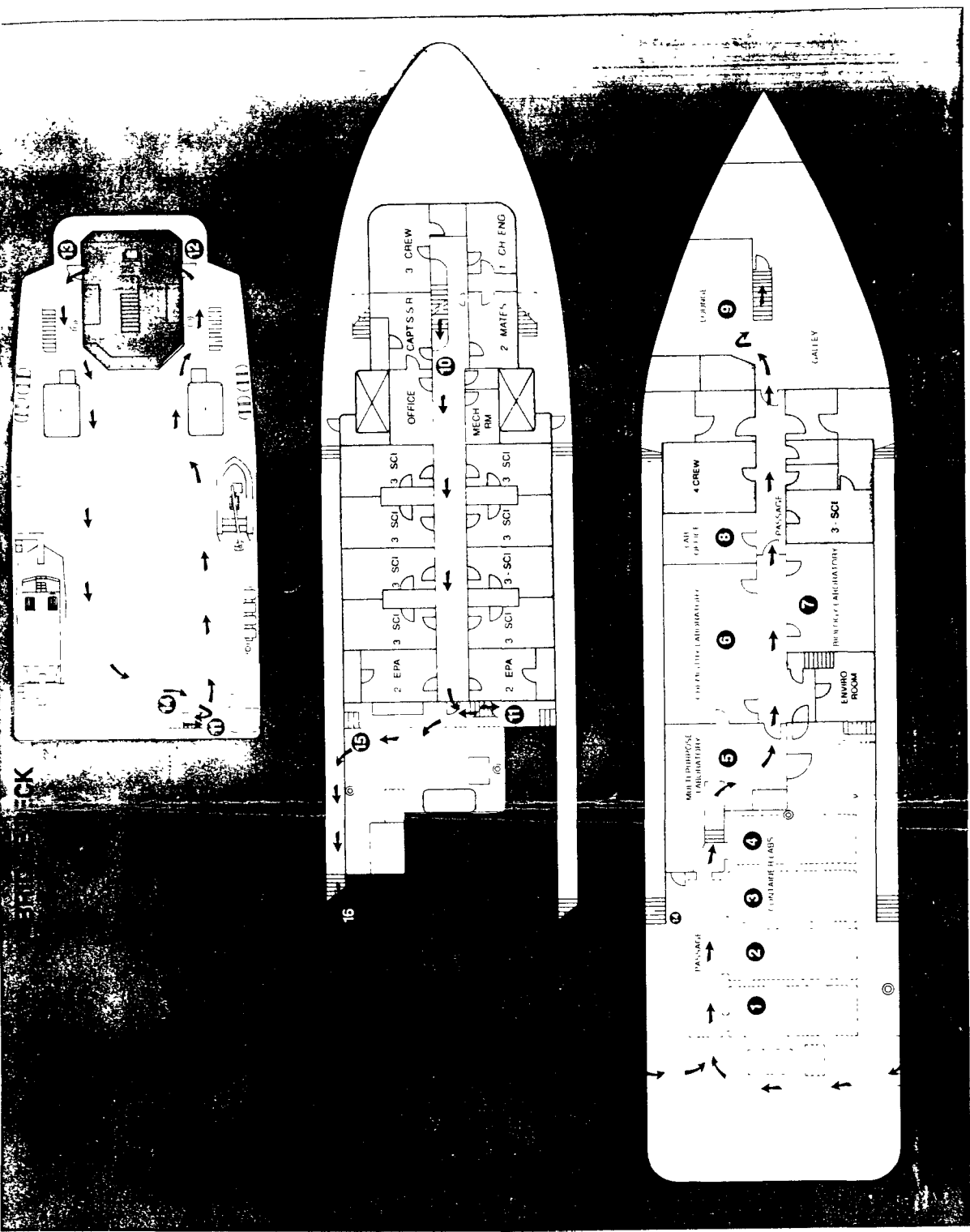
Scientists on the **Lake Guardian** monitor pollutant concentrations in the water, air, fish, sediments and other biological matter. They also measure the effects that pollution and other natural and manmade stresses are having on the Great Lakes.

Today, as you take a walking tour of the **Lake Guardian**, you will see the many facilities used by researchers from Federal and State agencies and universities. These scientists are working together to better understand the lakes and develop solutions to preserve and improve them. If you enter the ship from the starboard, or right side as you face forward, walk straight ahead and turn right through the first door. If you enter the ship from the port, or left

side, make a sharp left through the first passage entrance. You are now entering the area where the laboratories are located. The first four doors on the right lead to portable labs that can be removed and replaced with other special purpose labs. The Hazardous Materials Laboratory **1** is the chemical storage area of the ship for corrosives such as acids and bases, toxins and flammable materials. In the Primary Productivity Laboratory **2** the rate at which algae makes plant material from sunlight and nutrients in the water is measured. Next is the Analytical Laboratory **3** where scientists use a chromatograph and a spectrophotometer to analyze samples collected in the Extraction Lab. The Organic Extraction Laboratory **4** is where organic pollutants like polychlorinated biphenyls (PCB's) are removed from a continuous stream of water by a device called a Goulden extractor.

After you pass the portable labs you are in the Multi-Purpose Laboratory **5** where water taken from the lakes is filtered and preserved and biological samples are preserved for later analysis. The Rosette water sampling equipment, located outside the double doors, is also controlled from this laboratory. Proceeding through the single door and down the passageway, you will see the Chemistry Laboratory **6** on your left, where water is analyzed for a wide range of chemicals, including toxins and nutrients. The chemists' jobs are made much easier with automated analytical equipment and computers. The Biology Laboratory **7**, on your right, is where the green pigment called chlorophyll, from algae, is measured and where cultures of bacteria from the water are grown and counted. The algae (phytoplankton) and small creatures (zooplankton) can be observed here under special microscopes.

After you leave the laboratory section of the ship you will pass the lab offices on your left **8**. Keep walking straight ahead until you reach the lounge area **9** on your left. Here you will view a 15-minute



video entitled, "Aboard the Lake Guardian." Across from the lounge is the galley and dining area.

Now you are ready to continue your tour of the ship. Take the steps located outside of the lounge and walk up to the Focsle Deck **10** (pronounced folk'sell) where the sleeping quarters are located. Walking down this corridor you will see the cabins that are provided for scientists, students and EPA personnel when they are staying overnight on the ship. One of the rooms will probably be open for inspection. Each room can accommodate two or three persons and every two rooms share shower and toilet facilities. Including crew, the **Lake Guardian** can accommodate up to 43 people overnight.

At the end of the corridor, go through the door, turn left and climb the steps that lead to the Bridge Deck **11**. Stay to the right and follow the arrows that lead to the Pilot House **12**. Inside the Pilot House, the Captain or one of his officers will explain the equipment in this important part of the ship. Please exit the Pilot House from the door opposite the one you entered **13**. Keep walking to the right side toward the rear of the ship and exit the Bridge Deck down the same steps by which you entered **14**. When you reach the bottom of the steps on the Focsle Deck, walk to the opposite side of the ship (port side) go down a short flight of steps **15** and turn left. The next set of steps will take you down to the Main Deck **16** where you will exit the ship.

We hope you have enjoyed your visit aboard the **RV Lake Guardian**, the only self-contained, nonpolluting research ship on the Great Lakes. The continuing work that is being done on this vessel is helping us solve environmental problems not only in the Great Lakes but in fresh waters throughout the world.

