

# UNIT 2.3

## **Microbiology**

## **Lab Exercise**

## LAB ACTIVITY

- **Performance Objectives**

By monitoring, recording, and analyzing the temperature and irradiance conditions at which a microbial mat increases or decreases its net oxygen production, students will be able to define the microbial mat biological limitations according to temperature and irradiance.

- **Materials**

- o Microbial mats
- o Flow chambers or Mats chambers
- o Microsensors (oxygen)

- **Procedure**

STEP 1 Take profiles of replicate microbial mats.  
STEP 2 Begin incubating under different light and temperature levels.  
STEP 3 Take oxygen profiles under high light conditions (time series).  
STEP 4 Take oxygen profiles under low / high temperatures.

- **Wrap-Up Discussion and Evaluation**

Discussion Questions:

1. How did increasing irradiance affect O<sub>2</sub> profiles? Was this due to changes in production or consumption?
2. How did increasing temperature affect O<sub>2</sub> profiles? Was this due to changes in production or consumption? How does the effect of temperature on diffusion come into play?