

# Is there enough oxygen in our stream for fish to survive?

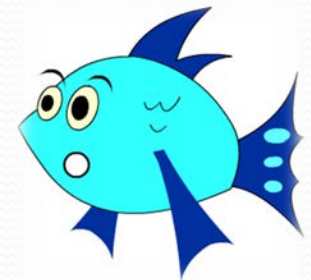
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DISSOLVED  
OXYGEN

# Introduction

- Dissolved Oxygen is oxygen in our stream.
- Enough oxygen= fish will survive
- Not enough oxygen= fish will die
- We test to see if there is Dissolved Oxygen with a kit.
- So do you think there is enough oxygen in our stream for fish to survive? Well the answer is **yes!** We had a range of fair to good standard.

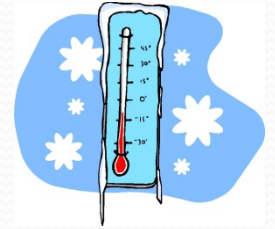


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# Background

## Possible Sources of D.O:

- Cold water temperatures allows more D.O.
- Crashing water can capture oxygen from the air
- Plants growing in the water can produce D.O.



## Possible Sources of D.O. Dropping:

- Warmer water holds less D.O.
- Excess organic waste (dead leaves, dead algae, animal/ human waste, etc.). This is “food” for bacteria.
- Lots of bacteria uses lots of D.O.



# Background



## Consequences of D.O. Rising:

- Fish and other aquatic animals stay healthy and do not get sick as much.
- Plants growing in the water stay healthy.

## Consequences of D.O. Dropping:


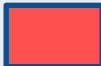
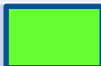
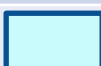
- Fish and other aquatic animals can get sick or even die without enough oxygen.
- Plants growing in the water can get sick or die without enough oxygen.
- Death Cycle



# Water Quality Standards

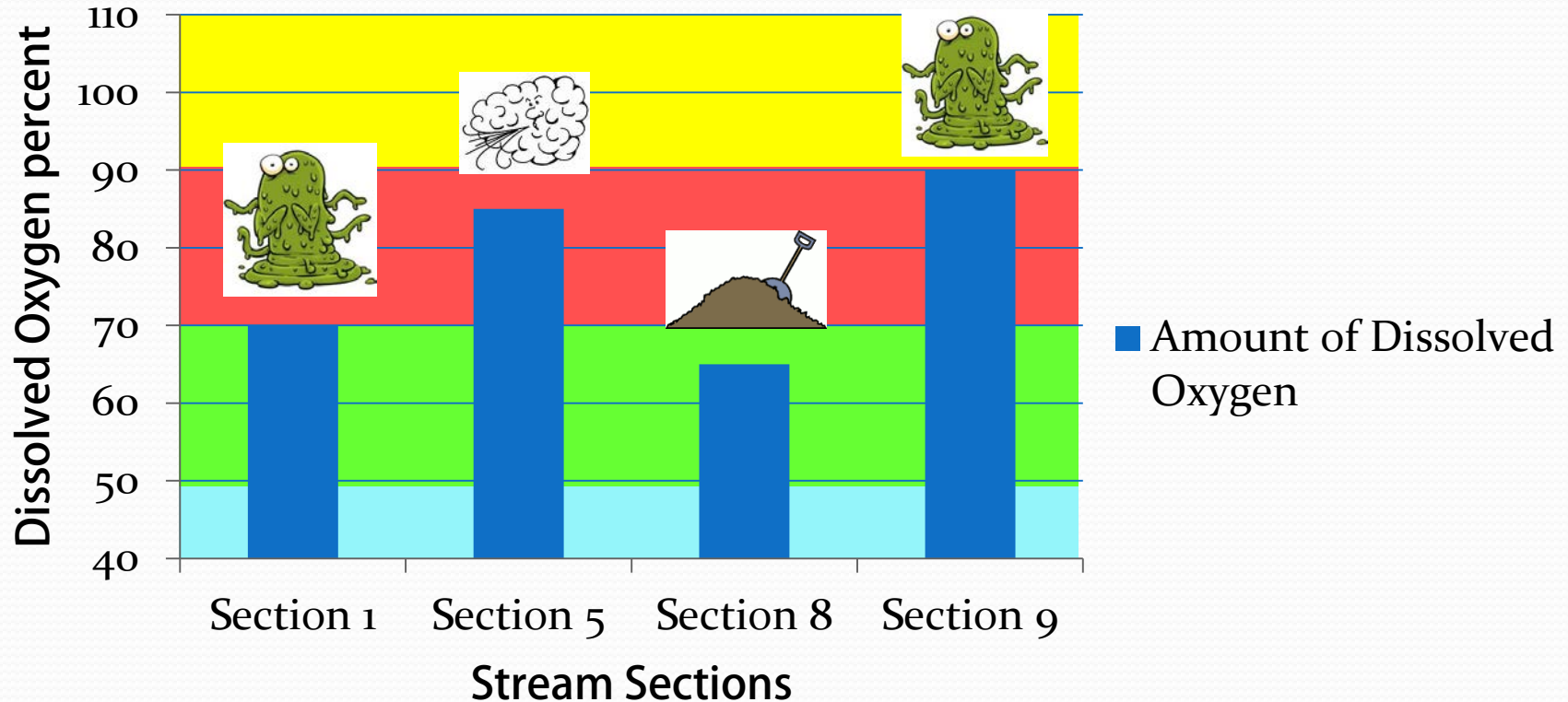
Enough  
oxygen for  
fish

Not  
enough  
oxygen for  
fish

Water Quality Standard		Dissolved Oxygen Percent
Excellent		91-110%
Good		71-90% and above 110%
Fair		51-70%
Poor		50% and below

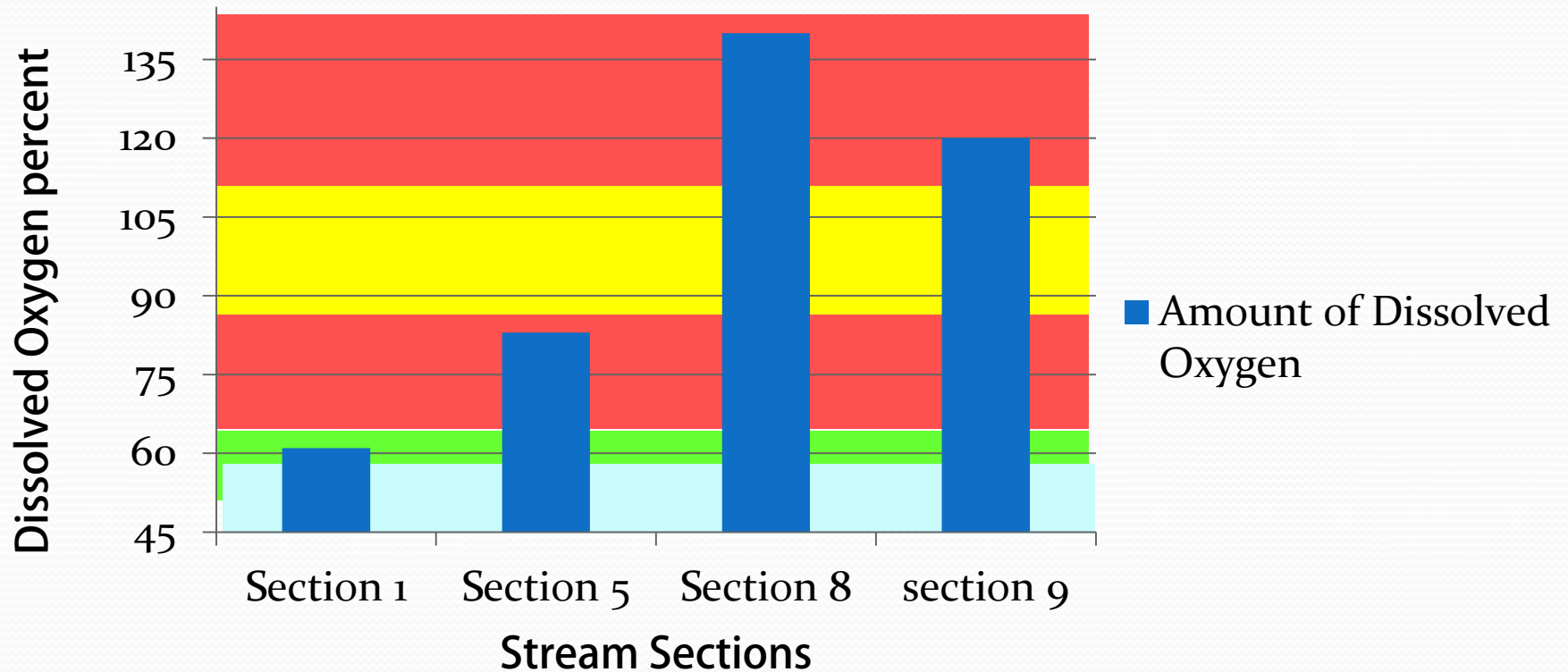
# Predictions

Amount of Dissolved Oxygen



# Evidence

## Amount of Dissolved Oxygen



# Area/Water Observation

- Section 1
    - Condominiums uphill
  - Section 5
    - Fast moving water
    - Tiny bit of organic waste
    - No water plants
  - Sections 1, 8, and 9
    - Lot of algae
    - Murky
    - No movement
    - Lot of organic waste-
- dead leaves, sticks, dead grass
- Area Observations
    - Surfaces-parking lot, roofs, road
    - Condominiums lawns
    - Greenhills
    - Glacier Hills
    - Storm drains



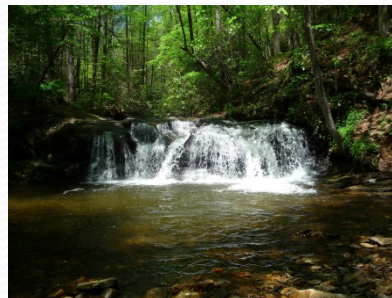


# Weather

- Recent weather
  - Sunny
  - Cloudy
  - Cold
  - Cloudy
- Day of testing weather
  - Snowy
  - Cold
  - Cloudy
  - Windy
  - 22° F

# Reasoning

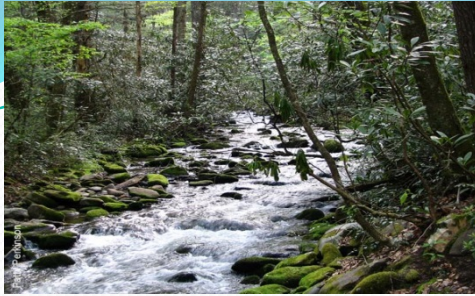
- Positive Results — enough oxygen for fish
- Section 1 — Slow water + Organic waste + Condo lawns
- Section 5 — Fast water/waterfall + Little organic waste
- Section 8 — No algae + Little organic waste
- Section 9 — Algae



# Rebuttal



- Too cold!
- Storm drains = Hot surfaces
- Dirt and algae = More heat absorbed



# Conclusion

- Remember, all organisms need oxygen to survive.
- Does anyone remember if there was enough oxygen in the stream? **Yes, we have enough oxygen in our stream and a good to fair standard.**
- **ACTION STEP:** Rake your leaves away from the stream. The more leaves in the stream, the more organic waste which is bad for the stream





YAY! I can breathe there  
is enough oxygen!



# Sources

- Hot Thermometer Picture: [http://www.clipartpanda.com/clipart\\_images/and-it-s-a-good-thing-47463129](http://www.clipartpanda.com/clipart_images/and-it-s-a-good-thing-47463129)
- No Sign Picture: <http://www.clker.com/clipart-transparent-red-circle.html>
- Smiling Fish Picture: <http://www.clipartbest.com/happy-cartoon-fish>
- Algae Picture: <http://www-tc.pbs.org/wgbh/nova/assets/img/posters/algae-fuel-vi.jpg>
- Leaves Picture:  
[http://redbeacon.s3.amazonaws.com/homeguides%2Farticles%2Fthumbs%2F7\\_uses\\_for\\_dead\\_leave\\_s\\_cover.jpg.600x275\\_q85\\_crop.jpg](http://redbeacon.s3.amazonaws.com/homeguides%2Farticles%2Fthumbs%2F7_uses_for_dead_leave_s_cover.jpg.600x275_q85_crop.jpg)
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- <https://www.google.com/search?q=dirty+water&espv=2> (Dirty water)
- <https://www.google.com/search?q=dead+fish&espv=2> (Dead fish)
- <http://www.hach.com/asset-get.product.image.jsa%253Fsku%253D146900%2526size%253DM%3Bhttp%253A%252F%252Fwww.hach.com%252Fdissolved-oxygen-test-kit-model-ox-2p%252Fproduct%253Fid%253D7640219538%3B250%3B221> (Dissolved oxygen kit)
- <https://www.google.com/search?q=cartoon+picture+of+a+fish+needing+oxygen&espv=2&biw=1034&bih=619&source=lnms&tbn=isch&sa=X&ei=dyc5Vf-> (Fish need oxygen pic)
- Clip art- (Fish and foot prints)
- <https://www.google.com/search?q=cartoon+rake> (Cartoon rake)