Attached you will find a sample key for two fishing seasons for three fleets. For each fleet, the Fishing Fleet Computation Worksheet has been completed for each season. Additionally, we have included a completed Community Fishery Summary Sheet and Graph for the sample. We hope that this helps you facilitate the activity better with your students.

Thank you,
Voices of the Bay Fisheries Education Program
Balance in the Bay
Fishing Fleet Computation Worksheet

FISHING SEASON (circle one) 1 2 3 4 5

1. How many paperclips did your fleet collect?
   \[ A = 132 \text{ paperclips} \]

2. If one paperclip is equal to 1,000 pounds of squid, how many pounds of squid did your fleet catch?
   \[ B = A \text{ paperclips} \times 1,000 \text{ lbs/paperclip} \]
   \[ B = 132,000 \text{ lbs} \]

3. If only 98% of the total number of pounds that your fleet caught were actually squid (the rest are called bycatch, fish that are not squid), how many pounds of squid did you catch?
   \[ C = B \text{ lbs} \times 0.98 \]
   \[ C = 129,360 \text{ lbs} \]

4. If it costs 50,000 pounds of squid per boat to keep it operating, how many pounds of squid are needed to pay the operating costs for your fleet?
   \[ D = \frac{50,000 \text{ lbs/boat} \times \text{ Number of Your Boats}}{} \]
   \[ D = 50,000 \times 1 = 50,000 \text{ lbs} \]

5. How many pounds of squid do you have left to sell after paying the operating costs?
   \[ E = C \text{ lbs} - D \text{ lbs} \]
   \[ E = 79,360 \text{ lbs} \]

6. In this simulation the dockside sale price for squid is $0.25/lb. How much money will you get paid for your squid?
   \[ F = E \text{ lbs} \times 0.25/\text{lb} \]
   \[ F = 19,840 \]

7. Did you make a profit this season (F is positive) or did you lose money (F is negative)?
   Profit

8. If you made a profit, extra boats cost $10,000 each. Would you like to buy more boats? Yes

9. How many boat(s) do you want to buy?
   \[ G = \text{boat(s)} \]

10. How much will it cost you to buy those extra boats?
    \[ H = G \text{ boat(s)} \times 10,000/\text{boat} \]
    \[ H = 10,000 \]

11. How much money do you have in your account at the end of the season?
    \[ \text{Season Net Profits} = F - H \]
    \[ \text{Season Net Losses} = F \]
    \[ \text{Season Net Profits} = 19,840 - 10,000 = 9,840 \]
    \[ \text{Season Net Losses} = 1 \]

If F is positive, Season Net Profits = F - H

Or, if F is negative, Season Net Losses = F
1. How many paperclips did your fleet collect?
   \[ A = 164 \text{ paperclips} \]

2. If one paperclip is equal to 1,000 pounds of squid, how many pounds of squid did your fleet catch?
   \[ B = A \text{ paperclips} \times 1,000 \text{ lbs/paperclip} \]
   \[ B = 164,000 \text{ lbs} \]

3. If only 98% of the total number of pounds that your fleet caught were actually squid (the rest are called bycatch, fish that are not squid), how many pounds of squid did you catch?
   \[ C = B \text{ lbs} \times 0.98 \]
   \[ C = 164,000 \times 0.98 = 160,720 \text{ lbs} \]

4. If it costs 50,000 pounds of squid per boat to keep it operating, how many pounds of squid are needed to pay the operating costs for your fleet?
   \[ D = 50,000 \text{ lbs/boat} \times \text{Number of Your Boats} \]
   \[ D = 100,000 \text{ lbs} \]

5. How many pounds of squid do you have left to sell after paying the operating costs?
   \[ E = C \text{ lbs} - D \text{ lbs} \]
   \[ E = 160,720 \text{ lbs} \]

6. In this simulation the dockside sale price for squid is $0.25/lb. How much money will you get paid for your squid?
   \[ F = E \text{ lbs} \times 0.25/\text{lb} \]
   \[ F = 15,180 \]

7. Did you make a profit this season (F is positive) or did you lose money (F is negative)?
   \[ \text{Profit} \]

8. If you made a profit, extra boats cost $10,000 each. Would you like to buy more boats?
   \[ \text{Yes} \]

9. How many boat(s) do you want to buy?
   \[ G = \text{ _____ boat(s)} \]

10. How much will it cost you to buy those extra boats?
    \[ H = G \text{ boat(s)} \times 10,000/\text{boat} \]
    \[ H = 10,000 \]

11. How much money do you have in your account at the end of the season?
    \[ 15,180 - 10,000 = 5,180 \]
    If F is positive, \[ \text{Season Net Profits} = F - H \]
    \[ \text{Season Net Profits} = 5,180 \]
    OR
    \[ \text{Season Net Losses} \]
    Or, if F is negative, \[ \text{Season Net Losses} = F \]
Balance in the Bay
Fishing Fleet Computation Worksheet

FISHING SEASON (circle one) 1 2 3 4 5

1. How many paperclips did your fleet collect?
   \[ A = \underline{442} \text{ paperclips} \]

2. If one paperclip is equal to 1,000 pounds of squid, how many pounds of squid did your fleet catch?
   \[ B = \frac{A \text{ paperclips}}{1,000 \text{ lbs/paperclip}} \]
   \[ B = \frac{442}{1,000} \text{ lbs} = 442 \times 1,000 = 442,000 \]

3. If only 98% of the total number of pounds that your fleet caught were actually squid (the rest are called bycatch, fish that are not squid), how many pounds of squid did you catch?
   \[ C = B \text{ lbs} \times 0.98 \]
   \[ 442,000 \times 0.98 = 433,160 \]

4. If it costs 50,000 pounds of squid per boat to keep it operating, how many pounds of squid are needed to pay the operating costs for your fleet?
   \[ D = \frac{50,000 \text{ lbs/boat}}{\text{Number of Your Boats}} \]
   \[ D = 50,000 \text{ lbs} \]

5. How many pounds of squid do you have left to sell after paying the operating costs?
   \[ E = C \text{ lbs} - D \text{ lbs} \]
   \[ 433,160 - 50,000 = 383,160 \]

6. In this simulation the dockside sale price for squid is $0.25/lb. How much money will you get paid for your squid?
   \[ F = E \text{ lbs} \times 0.25/\text{lb} \]
   \[ 383,160 \times 0.25 = 95,790 \]

7. Did you make a profit this season (F is positive) or did you lose money (F is negative)?
   Profit

8. If you made a profit, extra boats cost $10,000 each. Would you like to buy more boats?
   Yes

9. How many boat(s) do you want to buy?
   \[ G = \underline{7} \text{ boat(s)} \]

10. How much will it cost you to buy those extra boats?
    \[ H = G \text{ boat(s)} \times 10,000/\text{boat} \]
    \[ 7 \times 10,000 = 70,000 \]

11. How much money do you have in your account at the end of the season?
    \[ 98,790 - 70,000 = 28,790 \]
    Season Net Profits = F - H
    \[ \text{Season Net Profits} = \underline{28,790} \]
    OR
    Season Net Losses = F
    \[ \text{Season Net Losses} = \underline{} \]
Balance in the Bay
Fishing Fleet Computation Worksheet

FISHING SEASON (circle one) 1 2 3 4 5

1. How many paperclips did your fleet collect?
   \[ A = 1695 \text{ paperclips} \]

2. If one paperclip is equal to 1,000 pounds of squid, how many pounds of squid did your fleet catch?
   \[ B = A \text{ paperclips} \times 1,000 \text{ lbs/paperclip} \]
   \[ B = 1695 \times 1000 = 1,695,000 \text{ lbs} \]

3. If only 98% of the total number of pounds that your fleet caught were actually squid (the rest are called bycatch, fish that are not squid), how many pounds of squid did you catch?
   \[ C = B \text{ lbs} \times 0.98 \]
   \[ C = 1,695,000 \times 0.98 = 1,681,100 \text{ lbs} \]

4. If it costs 50,000 pounds of squid per boat to keep it operating, how many pounds of squid are needed to pay the operating costs for your fleet?
   \[ D = 50,000 \text{ lbs/boat} \times \text{Number of Your Boats} \]
   \[ D = 400,000 \text{ lbs} \]

5. How many pounds of squid do you have left to sell after paying the operating costs?
   \[ E = C \text{ lbs} - D \text{ lbs} \]
   \[ E = 1,681,100 - 400,000 = 1,281,100 \text{ lbs} \]

6. In this simulation the dockside sale price for squid is $0.25/lb. How much money will you get paid for your squid?
   \[ F = E \text{ lbs} \times 0.25 \text{ lb} \]
   \[ F = 1,281,100 \times 0.25 = 320,275 \text{ dollars} \]

7. Did you make a profit this season (F is positive) or did you lose money (F is negative)?
   \[ \text{Profit} \]

8. If you made a profit, extra boats cost $10,000 each. Would you like to buy more boats?
   \[ \text{No} \]

9. How many boat(s) do you want to buy?
   \[ G = 0 \text{ boat(s)} \]

10. How much will it cost you to buy those extra boats?
    \[ H = G \text{ boat(s)} \times 10,000 \text{/boat} \]
    \[ H = 0 \times 10,000 = 0 \]

11. How much money do you have in your account at the end of the season?
    \[ \text{Season Net Profits} = F - H \]
    \[ \text{Season Net Profits} = 320,275 - 0 = 320,275 \text{ dollars} \]

    \[ \text{Season Net Losses} = F \]
    \[ \text{Season Net Losses} = 0 \]

    \[ \text{If F is positive, Season Net Profits} = F - H \]
    \[ \text{OR} \]
    \[ \text{If F is negative, Season Net Losses} = F \]
Balance in the Bay
Fishing Fleet Computation Worksheet

FISHING SEASON (circle one) 0 1 2 3 4 5

1. How many paperclips did your fleet collect?
   A = __276__ paperclips

2. If one paperclip is equal to 1,000 pounds of squid, how many pounds of squid did your fleet catch?
   B = A paperclips x 1,000 lbs/paperclip
   B = __276,000__ lbs

3. If only 98% of the total number of pounds that your fleet caught were actually squid (the rest are called bycatch, fish that are not squid), how many pounds of squid did you catch?
   C = B lbs x 0.98
   C = __276,000__ lbs

4. If it costs 50,000 pounds of squid per boat to keep it operating, how many pounds of squid are needed to pay the operating costs for your fleet?
   D = 50,000 lbs/boat x Number of Your Boats Fishing
   D = __50,000__ lbs

5. How many pounds of squid do you have left to sell after paying the operating costs?
   E = C lbs - D lbs
   E = __226,480__ lbs

6. In this simulation the dockside sale price for squid is $0.25/lb. How much money will you get paid for your squid?
   F = E lbs x $0.25/lb
   F = $__55,120__

7. Did you make a profit this season (F is positive) or did you lose money (F is negative)? __Profit__

8. If you made a profit, extra boats cost $10,000 each. Would you like to buy more boats? __Yes__

9. How many boat(s) do you want to buy?
   G = __5__ boat(s)

10. How much will it cost you to buy those extra boats?
    H = G boat(s) x $10,000/boat
    H = $__50,000__

11. How much money do you have in your account at the end of the season?
    If F is positive, Season Net Profits = F - H
    Season Net Profits = $__5,120__

    OR

    If F is negative, Season Net Losses = F
    Season Net Losses

$5,120
Balance in the Bay
Fishing Fleet Computation Worksheet

FISHING SEASON (circle one)  1  2  3  4  5

1. How many paperclips did your fleet collect?
   \[ A = 138 \text{ paperclips} \]

2. If one paperclip is equal to 1,000 pounds of squid, how many pounds of squid did your fleet catch?
   \[ B = A \text{ paperclips} \times 1,000 \text{ lbs/paperclip} \]
   \[ B = 138,000 \text{ lbs} \]

3. If only 98% of the total number of pounds that your fleet caught were actually squid (the rest are called bycatch, fish that are not squid), how many pounds of squid did you catch?
   \[ C = B \text{ lbs} \times 0.98 \]
   \[ C = 138,000 \times 0.98 = 135,240 \text{ lbs} \]

4. If it costs 50,000 pounds of squid per boat to keep it operating, how many pounds of squid are needed to pay the operating costs for your fleet?
   \[ D = 50,000 \text{ lbs/boat} \times \text{Number of Your Boats} \]
   \[ D = 300,000 \text{ lbs} \]

5. How many pounds of squid do you have left to sell after paying the operating costs?
   \[ E = C \text{ lbs} - D \text{ lbs} \]
   \[ E = 135,240 - 300,000 = -164,760 \text{ lbs} \]

6. In this simulation the dockside sale price for squid is $0.25/lb. How much money will you get paid for your squid?
   \[ F = E \text{ lbs} \times 0.25/\text{lb} \]
   \[ F = -41,190 \text{ dollars} \]

7. Did you make a profit this season (F is positive) or did you lose money (F is negative)? **Lose**

8. If you made a profit, extra boats cost $10,000 each. Would you like to buy more boats? **No**

9. How many boat(s) do you want to buy?
   \[ G = 0 \text{ boat(s)} \]

10. How much will it cost you to buy those extra boats?
    \[ H = G \text{ boat(s)} \times 10,000/\text{boat} \]
    \[ H = 0 \times 10,000 = 0 \text{ dollars} \]

11. How much money do you have in your account at the end of the season?
    \[ -41,190 - 0 = -41,190 \text{ dollars} \]

   If F is positive, **Season Net Profits = F - H**
   \[ \text{Season Net Profits} = -41,190 \]

   Or, if F is negative, **Season Net Losses = F**
   \[ \text{Season Net Losses} = -41,190 \]
<table>
<thead>
<tr>
<th>Fleet 1</th>
<th>Sample</th>
<th>Season 1</th>
<th>Season 2</th>
<th>Season 3</th>
<th>Season 4</th>
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<tbody>
<tr>
<td></td>
<td>lbs squid caught</td>
<td># boats purchased</td>
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<th>Fleet 2</th>
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<tr>
<td></td>
<td>lbs squid caught</td>
<td># boats purchased</td>
<td>433,160</td>
<td>7</td>
<td>681,100</td>
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<td>Net profit/losses</td>
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<th>Fleet 3</th>
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<th>Season 4</th>
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<tbody>
<tr>
<td></td>
<td>lbs squid caught</td>
<td># boats purchased</td>
<td>270,410</td>
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<tr>
<th>Fleet 4</th>
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<tbody>
<tr>
<td></td>
<td>lbs squid caught</td>
<td># boats purchased</td>
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<tr>
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<td>Net profit/losses</td>
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<tr>
<th>Fleet 5</th>
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<tbody>
<tr>
<td></td>
<td>lbs squid caught</td>
<td># boats purchased</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>Net profit/losses</td>
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<thead>
<tr>
<th>Total pounds of squid caught (T)</th>
<th>Sample</th>
<th>Season 1</th>
<th>Season 2</th>
<th>Season 3</th>
<th>Season 4</th>
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<tbody>
<tr>
<td>(sum of each fleet’s catch)</td>
<td>T</td>
<td>833,000</td>
<td>977,060</td>
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<thead>
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<th>Total # paperclips collected (P)</th>
<th>Sample</th>
<th>Season 1</th>
<th>Season 2</th>
<th>Season 3</th>
<th>Season 4</th>
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<tbody>
<tr>
<td>T / 1,000 = P</td>
<td></td>
<td>833</td>
<td>977</td>
<td></td>
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<table>
<thead>
<tr>
<th>Total # paperclips remaining in fishing grounds (R)</th>
<th>Sample</th>
<th>Season 1</th>
<th>Season 2</th>
<th>Season 3</th>
<th>Season 4</th>
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</thead>
<tbody>
<tr>
<td>1,000 – P = R</td>
<td></td>
<td>167</td>
<td>23</td>
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<table>
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<tr>
<th>Total reproduction for next season (N)</th>
<th>Sample</th>
<th>Season 1</th>
<th>Season 2</th>
<th>Season 3</th>
<th>Season 4</th>
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<tbody>
<tr>
<td>R x 10 = N</td>
<td></td>
<td>1,670</td>
<td>230</td>
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<table>
<thead>
<tr>
<th>Number of paperclips to return to fishing grounds for start of next season (S)</th>
<th>Sample</th>
<th>Season 1</th>
<th>Season 2</th>
<th>Season 3</th>
<th>Season 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>N – R = S</td>
<td></td>
<td>1,503</td>
<td>207</td>
<td></td>
<td></td>
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Balance in the Bay
Community Fishery Graphs

1. Compare the pounds of squid landed (T) and the money earned (summed net profits/losses) each season.

2. Compare the pounds of squid landed (T) and total number of boats fishing each season.

3. Compare the pounds of squid in the population (S + R) at the end of each season.