Balance in the Bay
Worksheet/Summary/Graph Sample Key - Cover Sheet

Middle School

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,
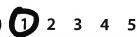Voices of the Bay Fisheries Education Program

Student Fishing Fleet Member Names:

Team 1

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

1. How many paperclips did your fleet collect?

   A = ___132___ 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 = ___132,000___ lbs $132 \times 1,000 = 132,000$ 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 = ___129,360___ lbs $132,000 \times 0.98 = 129,360$

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 $50,000 \times 1 = 50,000$

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

   E = ___79,360___ lbs $129,360 - 50,000 = 79,360$

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 = $ ___19,840___ $79,360 \times 0.25 = 19,840$

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 = ___1___ boat(s)

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

    H = $ ___10,000___ $1 \times 10,000 = 10,000$

11. How much money do you have in your account at the end of the season?

    $19,840 - 10,000 = 9,840$

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

    Or, if F is negative, **Season Net Losses = F**

Season Net Profits	$9,840
OR	
Season Net Losses	

VOICES of the BAY

Balance in the Bay
Fishing Fleet Computation Worksheet

Student Fishing Fleet Member Names:

Team 1

FISHING SEASON (circle one)   1   ②   3   4   5

1. How many paperclips did your fleet collect?

   A = __164__ 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 = __164,000__ lbs $164 \times 1,000 = 164,000$

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 lbs x 0.98**

   C = __160,720__ lbs $164,000 \times 0.98 = 160,720$

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 = __100,000__ lbs $50,000 \times 2 = 100,000$

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

   E = __60,720__ lbs $160,720 - 100,000 = 60,720$

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 = $__15,180__ $60,720 \times 0.25 = 15,180$

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 = __1__ boat(s)

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

   H = $ __10,000__ $1 \times 10,000 = 10,000$

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, **Season Net Profits = F - H**   **Season Net Profits** | $5,180 |

OR

Or, if F is negative, **Season Net Losses = F**   **Season Net Losses** | |

*SAMPLE *

Balance in the Bay
Fishing Fleet Computation Worksheet

VOICES of the BAY

Student Fishing Fleet Member Names:

Team 2

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

1. How many paperclips did your fleet collect?

    A = __442__ 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 = __442,000__ 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 lbs x 0.98**

    C = __433,160__ lbs $442,000 \times 0.98 = 433,160$

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 = 50,000 lbs/boat x Number of Your Boats Fishing**

    D = __50,000__ lbs $50,000 \times 1 = 50,000$

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

    E = __383,160__ 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 lbs x $0.25/lb**

    F = $ __95,790__ $383,160 \times 0.25 = 95,790$

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 = __7__ boat(s)

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

    H = $ __70,000__ $7 \times 10,000 = 70,000$

11. How much money do you have in your account at the end of the season?

    $95,790 - 70,000 = 25,790$

If F is positive, **Season Net Profits = F - H**   **Season Net Profits** | $25,790 |

OR

Or, if F is negative, **Season Net Losses = F**   **Season Net Losses** | |

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Balance in the Bay
Fishing Fleet Computation Worksheet

Student Fishing Fleet Member Names:

Team 2

FISHING SEASON (circle one)   1   ②   3   4   5

1. How many paperclips did your fleet collect?
   A = ___695___ 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 = ___695,000___ lbs $695 \times 1,000 = 695,000$

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 lbs x 0.98**
   C = ___681,100___ lbs $695,000 \times 0.98 = 681,100$

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 = ___400,000___ lbs $50,000 \times 8 = 400,000$

5. How many pounds of squid do you have left to sell after paying the operating costs? **E = C lbs - D lbs**
   E = ___281,100___ lbs $681,100 - 400,000 = 281,100$

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 = $ ___70,275___ $281,100 \times 0.25 = \$70,275$

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? _No_

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

10. How much will it cost you to buy those extra boats? **H = G boat(s) x $10,000/boat**
    H = $ ___0___ $0 \times 10,000 = 0$

11. How much money do you have in your account at the end of the season?
    $70,275 - 0 = 70,275$

If **F** is positive, **Season Net Profits = F - H**	**Season Net Profits**	$70,275
	OR	
Or, if **F** is negative, **Season Net Losses = F**	**Season Net Losses**	

SAMPLE
Balance in the Bay
Fishing Fleet Computation Worksheet

Student Fishing Fleet Member Names:

Team 3

FISHING SEASON (circle one) (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   276 × 1,000 = 276,000

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 lbs x 0.98**
   C = ___270,480___ lbs   276,000 × 0.98 = 270,480

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   50,000 × 1 = 50,000

5. How many pounds of squid do you have left to sell after paying the operating costs? **E = C lbs - D lbs**
   E = ___220,480___ lbs   270,480 - 50,000 = 220,480

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___   220,480 × 0.25 = 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___   5 × 10,000 = 50,000

11. How much money do you have in your account at the end of the season?
    55,120 - 50,000 = 5,120

If **F** is positive, **Season Net Profits = F - H**   Season Net Profits | $5,120 |
                                                              OR
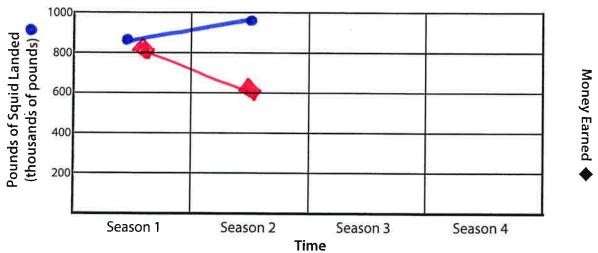Or, if **F** is negative, **Season Net Losses = F**   Season Net Losses | |

VOICES of the BAY

Balance in the Bay
Fishing Fleet Computation Worksheet

Student Fishing Fleet Member Names:

Team 3

FISHING SEASON (circle one)   1   ②   3   4   5

1. How many paperclips did your fleet collect?

   A = __138__ 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 = __138,000__ lbs $138 \times 1,000 = 138,000.$

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 lbs x 0.98**

   C = __135,240__ lbs $138,000 \times 0.98 = 135,240$

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 = __300,000__ lbs $50,000 \times 6 = 300,000$

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

   E = __-164,760__ lbs $135,240 - 300,000 = -164,760$

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 = $ __-41,190__ $-164,760 \times 0.25 = -41,190$

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__ boat(s)

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

    H = $ __0__ $0 \times 10,000 = 0$

11. How much money do you have in your account at the end of the season?

    $-41,190 - 0 = -41,190$

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

Or, if F is negative, **Season Net Losses = F**

Season Net Profits	
OR	
Season Net Losses	$ -41,190

SAMPLE

Balance in the Bay
Community Fishery Summary Sheet

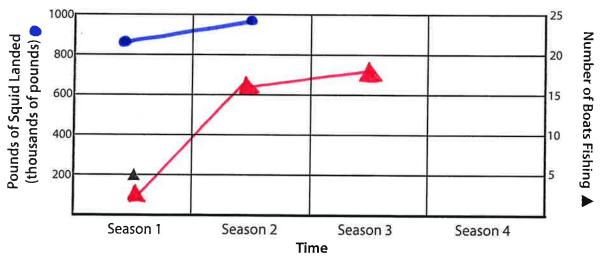|		Sample	Season 1		Season 2		Season 3		Season 4	
Fleet 1	lbs squid caught / # boats purchased		29,360	1	160,720	1				
	Net profit/losses		$9,840		$5,180					
Fleet 2	lbs squid caught / # boats purchased		433,160	7	681,100	0				
	Net profit/losses		$25,790		$70,275					
Fleet 3	lbs squid caught / # boats purchased		270,480	5	135,240	0				
	Net profit/losses		$5,120		$ -41,190					
Fleet 4	lbs squid caught / # boats purchased									
	Net profit/losses									
Fleet 5	lbs squid caught / # boats purchased									
	Net profit/losses									
Total pounds of squid caught (T)	T (sum of each fleet's catch)		833,000		977,060					
Total # paperclips collected (P)	$T / 1,000 = P$		833		977					
Total # paperclips remaining in fishing grounds (R)	$1,000 - P = R$		167		23					
Total reproduction for next season (N)	$R \times 10 = N$		1,670		230					
Number of paperclips to return to fishing grounds for start of next season (S)	$N - R = S$		1,503		207					

✳ SAMPLE ✳

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.