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

High School/Community College/Undergraduate

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

*SAMPLE *

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. Number of paperclips collected from all boats in your fleet: = **A** 132

2. The pounds of squid caught (A) from all boats in your fleet: **A x 1,000 = B** $132 \times 1,000 = 132,000$ lbs

3. Reduce total catch (B) by 2% for bycatch: **B x 0.98 = C** $132,000 \times 0.98 = 129,360$ lbs

4. Subtract 50,000 lbs squid per active boat in your fleet for operating costs: **C – (50,000 x Number of Boats Fishing in your fleet) = D**
   $129,360 - (50,000 \times 1) = 79,360$ lbs

5. For this simulation, the dockside sale price for squid is estimated to be $0.25/lb. To calculate seasonal earnings, multiply remaining pounds (D) by $0.25: **D x $0.25 = E** $79,360 \times 0.25 = \$19,840$

6. Did you make a profit this season or did you lose money? Profit

7. Extra boats (F) cost $10,000 each. Would you like to purchase additional boats? Yes
   How many boats will you be purchasing? __1__   Cost for additional boats (F): **F x $10,000 = G** $1 \times 10,000 = \$10,000$

8. Final season net profit/losses: **E - G =**
   $19,840 - 10,000 = \$9,840$

   Season Net Profit/Losses $9,840

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. Number of paperclips collected from all boats in your fleet: = **A**   164

2. The pounds of squid caught (A) from all boats in your fleet: **A x 1,000 = B** $164 \times 1,000 = 164,000$ lbs

3. Reduce total catch (B) by 2% for bycatch: **B x 0.98 = C** $164,000 \times 0.98 = 160,720$ lbs

4. Subtract 50,000 lbs squid per active boat in your fleet for operating costs: **C – (50,000 x Number of Boats Fishing in your fleet) = D**
   $160,720 - (50,000 \times 2) = 60,720$ lbs

5. For this simulation, the dockside sale price for squid is estimated to be $0.25/lb. To calculate seasonal earnings, multiply remaining pounds (D) by $0.25: **D x $0.25 = E** $60,720 \times 0.25 = \$15,180$

6. Did you make a profit this season or did you lose money? Profit

7. Extra boats (F) cost $10,000 each. Would you like to purchase additional boats? Yes
   How many boats will you be purchasing? __1__   Cost for additional boats (F): **F x $10,000 = G** $1 \times 10,000 = \$10,000$

8. Final season net profit/losses: **E - G =**

   Season Net Profit/Losses $5,180

   $15,180 - 10,000 = \$5,180$

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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. Number of paperclips collected from all boats in your fleet: = **A** 442

2. The pounds of squid caught (A) from all boats in your fleet: **A x 1,000 = B** 442 × 1,000 = 442,000 lbs

3. Reduce total catch (B) by 2% for bycatch: **B x 0.98 = C** 442,000 × 0.98 = 433,160 lbs

4. Subtract 50,000 lbs squid per active boat in your fleet for operating costs: **C – (50,000 x Number of Boats Fishing in your fleet) = D** 433,160 – (50,000 × 1) = 383,160 lbs

5. For this simulation, the dockside sale price for squid is estimated to be $0.25/lb. To calculate seasonal earnings, multiply remaining pounds (D) by $0.25: **D x $0.25 = E** 383,160 × 0.25 = $95,790

6. Did you make a profit this season or did you lose money? Profit

7. Extra boats (F) cost $10,000 each. Would you like to purchase additional boats? Yes
   How many boats will you be purchasing? _7_ Cost for additional boats (F): **F x $10,000 = G** 7 × 10,000 = $70,000

8. Final season net profit/losses: **E - G =** 95,790 – 70,000 = $25,790

Season Net Profit/Losses $25,790

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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. Number of paperclips collected from all boats in your fleet: = **A** 695

2. The pounds of squid caught (A) from all boats in your fleet: **A x 1,000 = B** 695 × 1,000 = 695,000 lbs

3. Reduce total catch (B) by 2% for bycatch: **B x 0.98 = C** 695,000 × 0.98 = 681,100 lbs

4. Subtract 50,000 lbs squid per active boat in your fleet for operating costs: **C – (50,000 x Number of Boats Fishing in your fleet) = D** 681,100 – (50,000 × 8) = 281,100 lbs

5. For this simulation, the dockside sale price for squid is estimated to be $0.25/lb. To calculate seasonal earnings, multiply remaining pounds (D) by $0.25: **D x $0.25 = E** 281,100 × 0.25 = $70,275

6. Did you make a profit this season or did you lose money? Profit

7. Extra boats (F) cost $10,000 each. Would you like to purchase additional boats? No
   How many boats will you be purchasing? _∅_ Cost for additional boats (F): **F x $10,000 = G** 0 × 10,000 = $0

8. Final season net profit/losses: **E - G =** 70,275 – 0 = $70,275

Season Net Profit/Losses $70,275

SAMPLE

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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. Number of paperclips collected from all boats in your fleet: = **A** 276

2. The pounds of squid caught (A) from all boats in your fleet: **A x 1,000 = B** $276 \times 1,000 = 276,000$ lbs

3. Reduce total catch (B) by 2% for bycatch: **B x 0.98 = C** $276,000 \times 0.98 = 270,480$ lbs

4. Subtract 50,000 lbs squid per active boat in your fleet for operating costs: **C – (50,000 x Number of Boats Fishing in your fleet) = D**
   $270,480 - (50,000 \times 1) = 220,480$ lbs

5. For this simulation, the dockside sale price for squid is estimated to be $0.25/lb. To calculate seasonal earnings, multiply remaining pounds (D) by $0.25: **D x $0.25 = E** $220,480 \times 0.25 = \$55,120$

6. Did you make a profit this season or did you lose money? Profit

7. Extra boats (F) cost $10,000 each. Would you like to purchase additional boats? Yes
   How many boats will you be purchasing? __5__   Cost for additional boats (F): **F x $10,000 = G** $5 \times 10,000 = \$50,000$

8. Final season net profit/losses: **E - G =**   **Season Net Profit/Losses** **$5,120**
   $55,120 - 50,000 = \$5,120$

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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. Number of paperclips collected from all boats in your fleet: = **A** 138

2. The pounds of squid caught (A) from all boats in your fleet: **A x 1,000 = B** $138 \times 1,000 = 138,000$ lbs

3. Reduce total catch (B) by 2% for bycatch: **B x 0.98 = C** $138,000 \times 0.98 = 135,240$ lbs

4. Subtract 50,000 lbs squid per active boat in your fleet for operating costs: **C – (50,000 x Number of Boats Fishing in your fleet) = D**
   $135,240 - (50,000 \times 6) = -164,760$ lbs

5. For this simulation, the dockside sale price for squid is estimated to be $0.25/lb. To calculate seasonal earnings, multiply remaining pounds (D) by $0.25: **D x $0.25 = E** $-164,760 \times 0.25 = \$-41,190$

6. Did you make a profit this season or did you lose money? Lose

7. Extra boats (F) cost $10,000 each. Would you like to purchase additional boats? No
   How many boats will you be purchasing? __0__   Cost for additional boats (F): **F x $10,000 = G** $0 \times 10,000 = \$0$

8. Final season net profit/losses: **E - G =**   **Season Net Profit/Losses** **$-41,190**
   $-41,190 - 0 = \$-41,190$

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Balance in the Bay
Community Fishery Summary Sheet

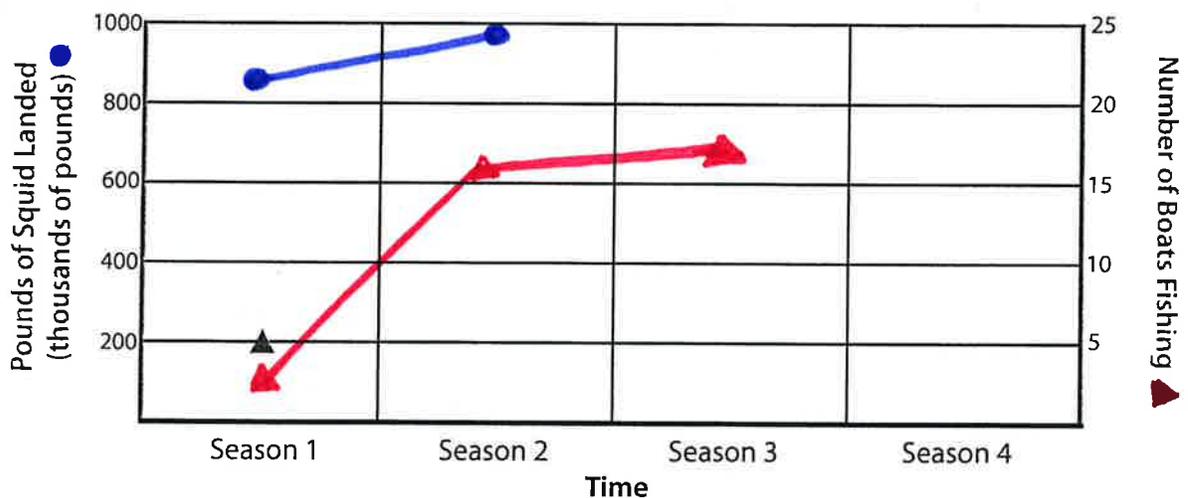|	Sample		Season 1		Season 2		Season 3		Season 4	
Fleet 1	lbs squid caught	# boats purchased	129,360	1	160,720	1				
	Net profit/losses		$9,840		$5,180					
Fleet 2	lbs squid caught	# boats purchased	433,160	7	681,100	0				
	Net profit/losses		$25,790		$70,275					
Fleet 3	lbs squid caught	# boats purchased	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		977.06					
Total # paperclips remaining in fishing grounds (R)	1,000 − P = **R**		167		22.94					
Total reproduction for next season (N)	R x 10 = **N**		1,670		229.4					
Number of paperclips to return to fishing grounds for start of next season (S)	N − R = **S**		1,503		206.5 (207)					

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.

Y-axis (left): Pounds of Squid Landed (thousands of pounds) — 200, 400, 600, 800, 1000
Y-axis (right): Money Earned
X-axis: Time — Season 1, Season 2, Season 3, Season 4
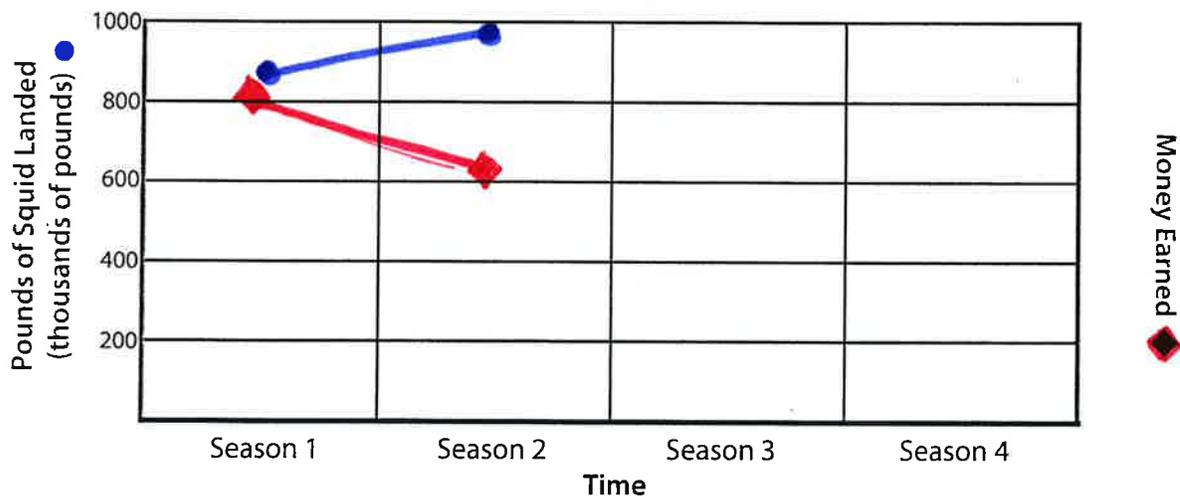
2. Compare the pounds of squid landed (T) and total number of boats fishing each season.

Y-axis (left): Pounds of Squid Landed (thousands of pounds) — 200, 400, 600, 800, 1000
Y-axis (right): Number of Boats Fishing — 5, 10, 15, 20, 25
X-axis: Time — Season 1, Season 2, Season 3, Season 4

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

Y-axis: Pounds of Squid in Population (thousands of pounds) — 200, 400, 600, 800, 1000, 1200, 1400
X-axis: Time — Start, Season 1, Season 2, Season 3, Season 4