Harvest Report Algorithm

Tim Riley

December 3, 2015

1 Overview

The essence of the algorithm to estimate the total kept is to:

1. Estimate the number of fishing vessels each day based upon the number of trailers counted each day.
2. Estimate the number of species kept per fishing vessel each day based upon the answers to the creel census taken the previous weekend.
3. Multiply (1) $\times$ (2) for each species for each day.
4. Add up all the estimated kept for each day.

2 Proof of Concept

1. $$\text{Estimated Areas 1-5 Vessels } \tfrac{vessels}{1} = 32.24 + 1.58 \times \text{Florida Bay Trailer Count}$$
2. $$\text{Boating Vessels} = \text{Fishing Vessels} + \text{Pleasure Vessels}$$
3. $$\text{Fishing/Boating Ratio } \tfrac{vessels}{vessels} = \frac{\text{Fishing Vessels}}{\text{Boating Vessels}}$$
4. $$\text{Estimated Fishing Vessels } \tfrac{vessels}{1} = \text{Estimated Areas 1-5 Vessels } \tfrac{vessels}{1} \times \text{Fishing/Boating Ratio } \tfrac{vessels}{vessels}$$

2.1 Estimated Kept

5. $$\text{Average Kept Per Fishing Vessel } \tfrac{kept}{vessel} = \frac{\text{Interview Species Kept } \frac{kept}{1}}{\text{Interview Fishing Vessels } \frac{vessels}{1}}$$
6. $$\text{Estimated Kept } \tfrac{kept}{1} = \text{Average Kept Per Fishing Vessel } \tfrac{kept}{vessel} \times \text{Estimated Fishing Vessels } \tfrac{vessel}{1}$$

2.2 Estimated Fishing Hours

7. Interview Fishing Effort Hours $\frac{anglerhours}{1}$ = Angler Count $\frac{angler}{1}$ × Interview Fishing Hours $\frac{hours}{1}$

8. Average Effort Hours Per Fishing Vessel $\frac{anglerhours}{vessel}$ = $\frac{\text{Interview Fishing Effort Hours}\frac{anglerhours}{1}}{\text{Interview Fishing Vessels}\frac{vessels}{1}}$

9. Estimated Fishing Hours $\frac{anglerhours}{1}$ = Average Effort Hours Per Fishing Vessel $\frac{anglerhours}{vessel}$ × Estimated Fishing Vessels $\frac{vessel}{1}$

3 Algorithm

This algorithm is reliable for dates beginning January 1, 2006[1].

1. (D) Total Trailer Count$_{day}$ = Florida Bay Trailer Count$_{day}$ (B) + Whitewater Bay Trailer Count$_{day}$ (C)

2. (E) Estimated Areas 1-5 Vessels$_{day}$ = 32.24 + 1.58 × Florida Bay Trailer Count$_{day}$ (B) See footnote [2]

3. (F) Estimated Area 6 Vessels$_{day}$ = 41.77 + 3.14 × Whitewater Bay Trailer Count$_{day}$ (C) See footnote [2]

4. (G) Estimated Areas 1-6 Vessels$_{day}$ = Estimated Areas 1-5 Vessels$_{day}$ (E) + Estimated Area 6 Vessels$_{day}$ (F)

5. **If day is Saturday and performed a Flamingo census on Saturday:**
   (H) Proforma Interviews Flamingo Fishing$_{day}$ = Interviews Flamingo Fishing$_{saturday}$
   (I) Proforma Interviews Flamingo Boating$_{day}$ = Interviews Flamingo Fishing$_{saturday}$ + Interviews Flamingo Pleasure$_{saturday}$
   Proforma Flamingo Fishing Hours$_{day}$ = Flamingo Fishing Hours$_{saturday}$
   Proforma Flamingo Angler Count$_{day}$ = Flamingo Angler Count$_{saturday}$

6. **If day is Saturday and performed an Everglades City census on Saturday:**
   Proforma Interviews Everglades City Fishing$_{day}$ = Interviews Everglades City Fishing$_{saturday}$
   Proforma Interviews Everglades City Boating$_{day}$ = Interviews Everglades City Fishing$_{saturday}$ + Interviews Everglades City Pleasure$_{saturday}$
   Proforma Everglades City Fishing Hours$_{day}$ = Everglades City Fishing Hours$_{saturday}$
   Proforma Everglades City Angler Count$_{day}$ = Everglades City Angler Count$_{saturday}$

7. **If day is Sunday and performed a Flamingo census on Sunday:**
   (H) Proforma Interviews Flamingo Fishing$_{day}$ = Interviews Flamingo Fishing$_{sunday}$
   (I) Proforma Interviews Flamingo Boating$_{day}$ = Interviews Flamingo Fishing$_{sunday}$ + Interviews Flamingo Pleasure$_{sunday}$
   Proforma Flamingo Fishing Hours$_{day}$ = Flamingo Fishing Hours$_{sunday}$
   Proforma Flamingo Angler Count$_{day}$ = Flamingo Angler Count$_{sunday}$

8. **If day is Sunday and performed an Everglades City census on Sunday:**
   Proforma Interviews Everglades City Fishing$_{day}$ = Interviews Everglades City Fishing$_{sunday}$
   Proforma Interviews Everglades City Boating$_{day}$ = Interviews Everglades City Fishing$_{sunday}$ + Interviews Everglades City Pleasure$_{sunday}$
   Proforma Everglades City Fishing Hours$_{day}$ = Everglades City Fishing Hours$_{sunday}$
   Proforma Everglades City Angler Count$_{day}$ = Everglades City Angler Count$_{sunday}$

9. **If day is Saturday and missed the Flamingo census on Saturday:**
   For each preceeding weekend i:
      If performed a Flamingo census on both $i_{saturday}$ and i_{sunday}:
         Interviews Flamingo $\text{Fishing}_{weekend}$ =
            Interviews Flamingo $\text{Fishing}_{saturday\ i}$ +
            Interviews Flamingo $\text{Fishing}_{sunday\ i}$
         Interviews Flamingo $\text{Boating}_{weekend}$ =
            Interviews Flamingo $\text{Fishing}_{saturday\ i}$ +
            Interviews Flamingo $\text{Pleasure}_{saturday\ i}$ +
            Interviews Flamingo $\text{Fishing}_{sunday\ i}$ +
            Interviews Flamingo $\text{Pleasure}_{sunday\ i}$
         Flamingo Fishing $\text{Hours}_{weekend}$ =
            Flamingo Fishing $\text{Hours}_{saturday\ i}$ +
            Flamingo Fishing $\text{Hours}_{sunday\ i}$
         Flamingo Angler $\text{Count}_{weekend}$ =
            Flamingo Angler $\text{Count}_{saturday\ i}$ +
            Flamingo Angler $\text{Count}_{sunday\ i}$

   (H) Proforma Interviews Flamingo $\text{Fishing}_{day} = \frac{\text{Interviews Flamingo Fishing}_{weekend}}{2}$

   (I) Proforma Interviews Flamingo $\text{Boating}_{day} = \frac{\text{Interviews Flamingo Boating}_{weekend}}{2}$

   Proforma Flamingo Fishing $\text{Hours}_{day} = \frac{\text{Flamingo Fishing Hours}_{weekend}}{2}$

   Proforma Flamingo Angler $\text{Count}_{day} = \frac{\text{Flamingo Angler Count}_{weekend}}{2}$

10. **If day is Saturday and missed the Everglades City census on Saturday:**
    For each preceeding weekend i:
       If performed an Everglades City census on both $i_{saturday}$ and i_{sunday}:
          Interviews Everglades City $\text{Fishing}_{weekend}$ =
             Interviews Everglades City $\text{Fishing}_{saturday\ i}$ +
             Interviews Everglades City $\text{Fishing}_{sunday\ i}$
          Interviews Everglades City $\text{Boating}_{weekend}$ =
             Interviews Everglades City $\text{Fishing}_{saturday\ i}$ +
             Interviews Everglades City $\text{Pleasure}_{saturday\ i}$ +
             Interviews Everglades City $\text{Fishing}_{sunday\ i}$ +
             Interviews Everglades City $\text{Pleasure}_{sunday\ i}$
          Everglades City Fishing $\text{Hours}_{weekend}$ =
             Everglades City Fishing $\text{Hours}_{saturday\ i}$ +
             Everglades City Fishing $\text{Hours}_{sunday\ i}$
          Everglades City Angler $\text{Count}_{weekend}$ =
             Everglades City Angler $\text{Count}_{saturday\ i}$ +
             Everglades City Angler $\text{Count}_{sunday\ i}$

    Proforma Interviews Everglades City $\text{Fishing}_{day} = \frac{\text{Interviews Everglades City Fishing}_{weekend}}{2}$

    Proforma Interviews Everglades City $\text{Boating}_{day} = \frac{\text{Interviews Everglades City Boating}_{weekend}}{2}$

    Proforma Everglades City Fishing $\text{Hours}_{day} = \frac{\text{Everglades City Fishing Hours}_{weekend}}{2}$

    Proforma Everglades City Angler $\text{Count}_{day} = \frac{\text{Everglades City Angler Count}_{weekend}}{2}$

11. **If day is Sunday and missed the Flamingo census but not Saturday:**

(H) Proforma Interviews Flamingo Fishing$_{day}$ = Interviews Flamingo Fishing$_{saturday}$
(I) Proforma Interviews Flamingo Boating$_{day}$ = Interviews Flamingo Fishing$_{saturday}$ + Interviews Flamingo Pleasure$_{saturday}$
Proforma Flamingo Fishing Hours$_{day}$ = Flamingo Fishing Hours$_{saturday}$
Proforma Flamingo Angler Count$_{day}$ = Flamingo Angler Count$_{saturday}$

12. **If day is Sunday and missed the Everglades City census but not Saturday:**
Proforma Interviews Everglades City Fishing$_{day}$ = Interviews Everglades City Fishing$_{saturday}$
Proforma Interviews Everglades City Boating$_{day}$ = Interviews Everglades City Fishing$_{saturday}$ + Interviews Everglades City Pleasure$_{saturday}$
Proforma Everglades City Fishing Hours$_{day}$ = Everglades City Fishing Hours$_{saturday}$
Proforma Everglades City Angler Count$_{day}$ = Everglades City Angler Count$_{saturday}$

13. **If day is Sunday and missed the Flamingo census all weekend:**
For each preceeding weekend i:
If performed a Flamingo census on both i$_{saturday}$ and i$_{sunday}$:
Interviews Flamingo Fishing$_{weekend}$ =
Interviews Flamingo Fishing$_{saturday\ i}$ +
Interviews Flamingo Fishing$_{sunday\ i}$
Interviews Flamingo Boating$_{weekend}$ =
Interviews Flamingo Fishing$_{saturday\ i}$ +
Interviews Flamingo Pleasure$_{saturday\ i}$ +
Interviews Flamingo Fishing$_{sunday\ i}$ +
Interviews Flamingo Pleasure$_{sunday\ i}$
Flamingo Fishing Hours$_{weekend}$ =
Flamingo Fishing Hours$_{saturday\ i}$ +
Flamingo Fishing Hours$_{sunday\ i}$
Flamingo Angler Count$_{weekend}$ =
Flamingo Angler Count$_{saturday\ i}$ +
Flamingo Angler Count$_{sunday\ i}$

(H) Proforma Interviews Flamingo Fishing$_{day}$ = $\frac{\text{Interviews Flamingo Fishing}_{weekend}}{2}$
(I) Proforma Interviews Flamingo Boating$_{day}$ = $\frac{\text{Interviews Flamingo Boating}_{weekend}}{2}$
Proforma Flamingo Fishing Hours$_{day}$ = $\frac{\text{Flamingo Fishing Hours}_{weekend}}{2}$
Proforma Flamingo Angler Count$_{day}$ = $\frac{\text{Flamingo Angler Count}_{weekend}}{2}$

14. **If day is Sunday and missed the Everglades City census all weekend:**

For each preceeding weekend i:

If performed an Everglades City census on both $i_{saturday}$ and i_{sunday}:

$$\text{Interviews Everglades City Fishing}_{weekend} = \text{Interviews Everglades City Fishing}_{saturday\ i} + \text{Interviews Everglades City Fishing}_{sunday\ i}$$

$$\text{Interviews Everglades City Boating}_{weekend} = \text{Interviews Everglades City Fishing}_{saturday\ i} + \text{Interviews Everglades City Pleasure}_{saturday\ i} + \text{Interviews Everglades City Fishing}_{sunday\ i} + \text{Interviews Everglades City Pleasure}_{sunday\ i}$$

$$\text{Everglades City Fishing Hours}_{weekend} = \text{Everglades City Fishing Hours}_{saturday\ i} + \text{Everglades City Fishing Hours}_{sunday\ i}$$

$$\text{Everglades City Angler Count}_{weekend} = \text{Everglades City Angler Count}_{saturday\ i} + \text{Everglades City Angler Count}_{sunday\ i}$$

$$\text{Proforma Interviews Everglades City Fishing}_{day} = \frac{\text{Interviews Everglades City Fishing}_{weekend}}{2}$$

$$\text{Proforma Interviews Everglades City Boating}_{day} = \frac{\text{Interviews Everglades City Boating}_{weekend}}{2}$$

$$\text{Proforma Everglades City Fishing Hours}_{day} = \frac{\text{Everglades City Fishing Hours}_{weekend}}{2}$$

$$\text{Proforma Everglades City Angler Count}_{day} = \frac{\text{Everglades City Angler Count}_{weekend}}{2}$$

15. **If day is weekday and performed a Flamingo census on Saturday only:**

$$\text{(H) Proforma Interviews Flamingo Fishing}_{day} = \text{Interviews Flamingo Fishing}_{saturday}$$

$$\text{(I) Proforma Interviews Flamingo Boating}_{day} = \text{Interviews Flamingo Fishing}_{saturday} + \text{Interviews Flamingo Pleasure}_{saturday}$$

$$\text{Proforma Flamingo Fishing Hours}_{day} = \text{Flamingo Fishing Hours}_{saturday}$$

$$\text{Proforma Flamingo Angler Count}_{day} = \text{Flamingo Angler Count}_{saturday}$$

16. **If day is weekday and performed an Everglades City census on Saturday only:**

$$\text{Proforma Interviews Everglades City Fishing}_{day} = \text{Interviews Everglades City Fishing}_{saturday}$$

$$\text{Proforma Interviews Everglades City Boating}_{day} = \text{Interviews Everglades City Fishing}_{saturday} + \text{Interviews Everglades City Pleasure}_{saturday}$$

$$\text{Proforma Everglades City Fishing Hours}_{day} = \text{Everglades City Fishing Hours}_{saturday}$$

$$\text{Proforma Everglades City Angler Count}_{day} = \text{Everglades City Angler Count}_{saturday}$$

17. **If day is weekday and performed a Flamingo census on Sunday only:**

$$\text{(H) Proforma Interviews Flamingo Fishing}_{day} = \text{Interviews Flamingo Fishing}_{sunday}$$

$$\text{(I) Proforma Interviews Flamingo Boating}_{day} = \text{Interviews Flamingo Fishing}_{sunday} + \text{Interviews Flamingo Pleasure}_{sunday}$$

$$\text{Proforma Flamingo Fishing Hours}_{day} = \text{Flamingo Fishing Hours}_{sunday}$$

$$\text{Proforma Flamingo Angler Count}_{day} = \text{Flamingo Angler Count}_{sunday}$$

18. **If day is weekday and performed an Everglades City census on Sunday only:**

$$\text{Proforma Interviews Everglades City Fishing}_{day} = \text{Interviews Everglades City Fishing}_{sunday}$$

$$\text{Proforma Interviews Everglades City Boating}_{day} = \text{Interviews Everglades City Fishing}_{sunday} + \text{Interviews Everglades City Pleasure}_{sunday}$$

$$\text{Proforma Everglades City Fishing Hours}_{day} = \text{Everglades City Fishing Hours}_{sunday}$$

$$\text{Proforma Everglades City Angler Count}_{day} = \text{Everglades City Angler Count}_{sunday}$$

19. **If day is weekday and performed a Flamingo census on both Saturday and Sunday:**

$$\begin{aligned}
\text{Interviews Flamingo Fishing}_{weekend} = {} & \text{Interviews Flamingo Fishing}_{saturday} + \\
& \text{Interviews Flamingo Fishing}_{sunday} \\
\text{Interviews Flamingo Boating}_{weekend} = {} & \text{Interviews Flamingo Fishing}_{saturday} + \\
& \text{Interviews Flamingo Pleasure}_{saturday} + \\
& \text{Interviews Flamingo Fishing}_{sunday} + \\
& \text{Interviews Flamingo Pleasure}_{sunday} \\
\text{Flamingo Fishing Hours}_{weekend} = {} & \text{Flamingo Fishing Hours}_{saturday} + \\
& \text{Flamingo Fishing Hours}_{sunday} \\
\text{Flamingo Angler Count}_{weekend} = {} & \text{Flamingo Angler Count}_{saturday} + \\
& \text{Flamingo Angler Count}_{sunday}
\end{aligned}$$

$$\begin{aligned}
\text{(H) Proforma Interviews Flamingo Fishing}_{day} &= \frac{\text{Interviews Flamingo Fishing}_{weekend}}{2} \\
\text{(I) Proforma Interviews Flamingo Boating}_{day} &= \frac{\text{Interviews Flamingo Boating}_{weekend}}{2} \\
\text{Proforma Flamingo Fishing Hours}_{day} &= \frac{\text{Flamingo Fishing Hours}_{weekend}}{2} \\
\text{Proforma Flamingo Angler Count}_{day} &= \frac{\text{Flamingo Angler Count}_{weekend}}{2}
\end{aligned}$$

20. **If day is weekday and performed an Everglades City census on both Saturday and Sunday:**

$$\begin{aligned}
\text{Interviews Everglades City Fishing}_{weekend} = {} & \text{Interviews Everglades City Fishing}_{saturday} + \\
& \text{Interviews Everglades City Fishing}_{sunday} \\
\text{Interviews Everglades City Boating}_{weekend} = {} & \text{Interviews Everglades City Fishing}_{saturday} + \\
& \text{Interviews Everglades City Pleasure}_{saturday} + \\
& \text{Interviews Everglades City Fishing}_{sunday} + \\
& \text{Interviews Everglades City Pleasure}_{sunday} \\
\text{Everglades City Fishing Hours}_{weekend} = {} & \text{Everglades City Fishing Hours}_{saturday} + \\
& \text{Everglades City Fishing Hours}_{sunday} \\
\text{Everglades City Angler Count}_{weekend} = {} & \text{Everglades City Angler Count}_{saturday} + \\
& \text{Everglades City Angler Count}_{sunday}
\end{aligned}$$

$$\begin{aligned}
\text{Proforma Interviews Everglades City Fishing}_{day} &= \frac{\text{Interviews Everglades City Fishing}_{weekend}}{2} \\
\text{Proforma Interviews Everglades City Boating}_{day} &= \frac{\text{Interviews Everglades City Boating}_{weekend}}{2} \\
\text{Proforma Everglades City Fishing Hours}_{day} &= \frac{\text{Everglades City Fishing Hours}_{weekend}}{2} \\
\text{Proforma Everglades City Angler Count}_{day} &= \frac{\text{Everglades City Angler Count}_{weekend}}{2}
\end{aligned}$$

21. **If day is weekday and missed the Flamingo census all weekend:**

For each preceeding weekend i:

If performed a Flamingo census on both $i_{saturday}$ and i_{sunday}:

Interviews Flamingo Fishing$_{weekend}$ =
Interviews Flamingo Fishing$_{saturday\ i}$ +
Interviews Flamingo Fishing$_{sunday\ i}$

Interviews Flamingo Boating$_{weekend}$ =
Interviews Flamingo Fishing$_{saturday\ i}$ +
Interviews Flamingo Pleasure$_{saturday\ i}$ +
Interviews Flamingo Fishing$_{sunday\ i}$ +
Interviews Flamingo Pleasure$_{sunday\ i}$

Flamingo Fishing Hours$_{weekend}$ =
Flamingo Fishing Hours$_{saturday\ i}$ +
Flamingo Fishing Hours$_{sunday\ i}$

Flamingo Angler Count$_{weekend}$ =
Flamingo Angler Count$_{saturday\ i}$ +
Flamingo Angler Count$_{sunday\ i}$

(H) Proforma Interviews Flamingo Fishing$_{day}$ = $\frac{\text{Interviews Flamingo Fishing}_{weekend}}{2}$

(I) Proforma Interviews Flamingo Boating$_{day}$ = $\frac{\text{Interviews Flamingo Boating}_{weekend}}{2}$

Proforma Flamingo Fishing Hours$_{day}$ = $\frac{\text{Flamingo Fishing Hours}_{weekend}}{2}$

Proforma Flamingo Angler Count$_{day}$ = $\frac{\text{Flamingo Angler Count}_{weekend}}{2}$

22. **If day is weekday and missed the Everglades City census all weekend:**

For each preceeding weekend i:

If performed an Everglades City census on both $i_{saturday}$ and i_{sunday}:

Interviews Everglades City Fishing$_{weekend}$ =
Interviews Everglades City Fishing$_{saturday\ i}$ +
Interviews Everglades City Fishing$_{sunday\ i}$

Interviews Everglades City Boating$_{weekend}$ =
Interviews Everglades City Fishing$_{saturday\ i}$ +
Interviews Everglades City Pleasure$_{saturday\ i}$ +
Interviews Everglades City Fishing$_{sunday\ i}$ +
Interviews Everglades City Pleasure$_{sunday\ i}$

Everglades City Fishing Hours$_{weekend}$ =
Everglades City Fishing Hours$_{saturday\ i}$ +
Everglades City Fishing Hours$_{sunday\ i}$

Everglades City Angler Count$_{weekend}$ =
Everglades City Angler Count$_{saturday\ i}$ +
Everglades City Angler Count$_{sunday\ i}$

Proforma Interviews Everglades City Fishing$_{day}$ = $\frac{\text{Interviews Everglades City Fishing}_{weekend}}{2}$

Proforma Interviews Everglades City Boating$_{day}$ = $\frac{\text{Interviews Everglades City Boating}_{weekend}}{2}$

Proforma Everglades City Fishing Hours$_{day}$ = $\frac{\text{Everglades City Fishing Hours}_{weekend}}{2}$

Proforma Everglades City Angler Count$_{day}$ = $\frac{\text{Everglades City Angler Count}_{weekend}}{2}$

23. (J) Proforma Interviews Park Fishing$_{day}$ = Proforma Interviews Flamingo Fishing$_{day}$ (H) + Proforma Interviews Everglades City Fishing$_{day}$

24. (K) $\text{Proforma Interviews Park Boating}_{day} = \text{Proforma Interviews Flamingo Boating}_{day}$ (I) + $\text{Proforma Interviews Everglades City Boating}_{day}$

25. $\text{Flamingo Fishing/Boating Ratio}_{day} = \dfrac{\text{Proforma Interviews Flamingo Fishing}_{day}(\text{H})}{\text{Proforma Interviews Flamingo Boating}_{day}(\text{I})}$

26. $\text{Flamingo Fishing Effort Hours}_{day} = \text{Flamingo Angler Count}_{day} \times \text{Proforma Flamingo Fishing Hours}_{day}$

27. $$\text{Flamingo Average Effort Hours Per Fishing Vessel}_{day} = \frac{\text{Flamingo Fishing Effort Hours}_{day}}{\text{Proforma Interviews Flamingo Fishing}_{day}(\text{H})}$$

28. $\text{Everglades City Fishing Effort Hours}_{day} = \text{Everglades City Angler Count}_{day} \times \text{Proforma Everglades City Fishing Hours}_{day}$

29. $$\text{Everglades City Average Effort Hours Per Fishing Vessel}_{day} = \frac{\text{Everglades City Effort Fishing Hours}_{day}}{\text{Proforma Interviews Everglades City Fishing}_{day}}$$

30. $\text{Estimated Flamingo Fishing Vessels}_{day} = \text{Estimated Areas 1-5 Vessels} \times \text{Flamingo Fishing/Boating Ratio}_{day}$

31. $\text{Everglades City Fishing/Boating Ratio}_{day} = \dfrac{\text{Proforma Interviews Everglades City Fishing}_{day}}{\text{Proforma Interviews Everglades City Boating}_{day}}$

32. $\text{Estimated Everglades City Fishing Vessels}_{day} = \text{Estimated Area 6 Vessels} \times \text{Everglades City Fishing/Boating Ratio}_{day}$

33. (L) $\text{Estimated Park Fishing Vessels}_{day} = \text{Estimated Flamingo Fishing Vessels}_{day} + \text{Estimated Everglades City Fishing Vessels}_{day}$

34. $$\text{Estimated Flamingo Effort Hours}_{day} = \text{Flamingo Average Effort Hours Per Fishing Vessel}_{day} \times \text{Estimated Flamingo Fishing Vessels}_{day}$$

35. $$\text{Estimated Everglades City Effort Hours}_{day} = \text{Everglades City Average Effort Hours Per Fishing Vessel}_{day} \times \text{Estimated Everglades City Fishing Vessels}_{day}$$

36. $\text{Estimated Park Effort Hours}_{day} = \text{Estimated Flamingo Effort Hours}_{day} + \text{Estimated Everglades City Effort Hours}_{day}$

37. **If day is Saturday and performed a Flamingo census on Saturday:**
    (M) $\text{Areas 1-5 Sample Kept}_{species\ day} = \text{Areas 1-5 Sample Kept}_{species\ saturday}$
    (N) $\text{Areas 1-5 Sample Released}_{species\ day} = \text{Areas 1-5 Sample Released}_{species\ saturday}$

38. **If day is Sunday and performed a Flamingo census on Sunday:**
    (M) $\text{Areas 1-5 Sample Kept}_{species\ day} = \text{Areas 1-5 Sample Kept}_{species\ sunday}$
    (N) $\text{Areas 1-5 Sample Released}_{species\ day} = \text{Areas 1-5 Sample Released}_{species\ sunday}$

39. **If day is Saturday and missed the Flamingo census on Saturday:**
For each preceeding weekend i:
If performed a Flamingo census on both $i_{saturday}$ and i_{sunday}:
Areas 1-5 Sample $\text{Kept}_{weekend}$ =
Areas 1-5 Sample $\text{Kept}_{saturday\ i}$ +
Areas 1-5 Sample $\text{Kept}_{sunday\ i}$
Areas 1-5 Sample $\text{Released}_{weekend}$ =
Areas 1-5 Sample $\text{Released}_{saturday\ i}$ +
Areas 1-5 Sample $\text{Released}_{sunday\ i}$ +

(M) Areas 1-5 Sample $\text{Kept}_{species\ day} = \frac{\text{Areas 1-5 Sample Kept}_{weekend}}{2}$

(N) Areas 1-5 Sample $\text{Released}_{species\ day} = \frac{\text{Areas 1-5 Sample Released}_{weekend}}{2}$

40. **If day is Sunday and missed the Flamingo census but not Saturday:**
(M) Areas 1-5 Sample $\text{Kept}_{species\ day}$ = Areas 1-5 Sample $\text{Kept}_{species\ saturday}$

(N) Areas 1-5 Sample $\text{Released}_{species\ day}$ = Areas 1-5 Sample $\text{Released}_{species\ saturday}$

41. **If day is Sunday and missed the Flamingo census all weekend:**
For each preceeding weekend i:
If performed a Flamingo census on both $i_{saturday}$ and i_{sunday}:
Areas 1-5 Sample $\text{Kept}_{weekend}$ =
Areas 1-5 Sample $\text{Kept}_{saturday\ i}$ +
Areas 1-5 Sample $\text{Kept}_{sunday\ i}$
Areas 1-5 Sample $\text{Released}_{weekend}$ =
Areas 1-5 Sample $\text{Released}_{saturday\ i}$ +
Areas 1-5 Sample $\text{Released}_{sunday\ i}$ +

(M) Areas 1-5 Sample $\text{Kept}_{species\ day} = \frac{\text{Areas 1-5 Sample Kept}_{weekend}}{2}$

(N) Areas 1-5 Sample $\text{Released}_{species\ day} = \frac{\text{Areas 1-5 Sample Released}_{weekend}}{2}$

42. **If day is weekday and performed a Flamingo census on Saturday only:**
(M) Areas 1-5 Sample $\text{Kept}_{species\ day}$ = Areas 1-5 Sample $\text{Kept}_{species\ saturday}$

(N) Areas 1-5 Sample $\text{Released}_{species\ day}$ = Areas 1-5 Sample $\text{Released}_{species\ saturday}$

43. **If day is weekday and performed an Flamingo census on Sunday only:**
(M) Areas 1-5 Sample $\text{Kept}_{species\ day}$ = Areas 1-5 Sample $\text{Kept}_{species\ sunday}$

(N) Areas 1-5 Sample $\text{Released}_{species\ day}$ = Areas 1-5 Sample $\text{Released}_{species\ sunday}$

44. **If day is weekday and performed a Flamingo census on both Saturday and Sunday:**
Areas 1-5 Sample $\text{Kept}_{weekend}$ = Areas 1-5 Sample $\text{Kept}_{saturday\ i}$ +
Areas 1-5 Sample $\text{Kept}_{sunday\ i}$
Areas 1-5 Sample $\text{Released}_{weekend}$ = Areas 1-5 Sample $\text{Released}_{saturday\ i}$ +
Areas 1-5 Sample $\text{Released}_{sunday\ i}$ +

(M) Areas 1-5 Sample $\text{Kept}_{species\ day} = \frac{\text{Areas 1-5 Sample Kept}_{weekend}}{2}$

(N) Areas 1-5 Sample $\text{Released}_{species\ day} = \frac{\text{Areas 1-5 Sample Released}_{weekend}}{2}$

45. **If day is weekday and missed the Flamingo census on Saturday and Sunday:**
For each preceeding weekend i:
If performed a Flamingo census on both $i_{saturday}$ and i_{sunday}:
Areas 1-5 Sample $\text{Kept}_{weekend}$ =
Areas 1-5 Sample $\text{Kept}_{saturday\ i}$ +
Areas 1-5 Sample $\text{Kept}_{sunday\ i}$
Areas 1-5 Sample $\text{Released}_{weekend}$ =
Areas 1-5 Sample $\text{Released}_{saturday\ i}$ +
Areas 1-5 Sample $\text{Released}_{sunday\ i}$ +

(M) Areas 1-5 Sample $\text{Kept}_{species\ day} = \frac{\text{Areas 1-5 Sample Kept}_{weekend}}{2}$

(N) Areas 1-5 Sample $\text{Released}_{species\ day} = \frac{\text{Areas 1-5 Sample Released}_{weekend}}{2}$

46. **If day is Saturday and performed an Everglades City census on Saturday:**
Area 6 Sample $\text{Kept}_{species\ day}$ = Area 6 Sample $\text{Kept}_{species\ saturday}$

Areas 6 Sample $\text{Released}_{species\ day}$ = Area 6 Sample $\text{Released}_{species\ saturday}$

47. **If day is Sunday and performed an Everglades City census on Sunday:**
Area 6 Sample $\text{Kept}_{species\ day}$ = Area 6 Sample $\text{Kept}_{species\ sunday}$

Areas 6 Sample $\text{Released}_{species\ day}$ = Area 6 Sample $\text{Released}_{species\ sunday}$

48. **If day is Saturday and missed the Everglades City census on Saturday:**
For each preceeding weekend i:
If performed an Everglades City census on both $i_{saturday}$ and i_{sunday}:
Area 6 Sample $\text{Kept}_{weekend}$ =
Area 6 Sample $\text{Kept}_{saturday\ i}$ +
Area 6 Sample $\text{Kept}_{sunday\ i}$
Area 6 Sample $\text{Released}_{weekend}$ =
Area 6 Sample $\text{Released}_{saturday\ i}$ +
Area 6 Sample $\text{Released}_{sunday\ i}$ +

Area 6 Sample $\text{Kept}_{species\ day} = \frac{\text{Area 6 Sample Kept}_{weekend}}{2}$

Area 6 Sample $\text{Released}_{species\ day} = \frac{\text{Area 6 Sample Released}_{weekend}}{2}$

49. **If day is Sunday and missed the Everglades City census but not Saturday:**
Area 6 Sample $\text{Kept}_{species\ day}$ = Area 6 Sample $\text{Kept}_{species\ saturday}$

Areas 6 Sample $\text{Released}_{species\ day}$ = Area 6 Sample $\text{Released}_{species\ saturday}$

50. **If day is Sunday and missed the Everglades City census all weekend:**
For each preceeding weekend i:
If performed an Everglades City census on both $i_{saturday}$ and i_{sunday}:
Area 6 Sample $\text{Kept}_{weekend}$ =
Area 6 Sample $\text{Kept}_{saturday\ i}$ +
Area 6 Sample $\text{Kept}_{sunday\ i}$
Area 6 Sample $\text{Released}_{weekend}$ =
Area 6 Sample $\text{Released}_{saturday\ i}$ +
Area 6 Sample $\text{Released}_{sunday\ i}$ +

51. **If day is weekday and performed an Everglades City census on Saturday only:**
Area 6 Sample $\text{Kept}_{species\ day}$ = Area 6 Sample $\text{Kept}_{species\ saturday}$

Areas 6 Sample Released$_{species\ day}$ = Area 6 Sample Released$_{species\ saturday}$

52. **If day is weekday and performed an Everglades City census on Sunday only:**
Area 6 Sample Kept$_{species\ day}$ = Area 6 Sample Kept$_{species\ sunday}$

Areas 6 Sample Released$_{species\ day}$ = Area 6 Sample Released$_{species\ sunday}$

53. **If day is weekday and performed an Everglades City census on both Saturday and Sunday:**

$$\begin{aligned}\text{Area 6 Sample Kept}_{weekend} = {} & \text{Area 6 Sample Kept}_{saturday\ i} + \\ & \text{Area 6 Sample Kept}_{sunday\ i}\end{aligned}$$

$$\begin{aligned}\text{Area 6 Sample Released}_{weekend} = {} & \text{Area 6 Sample Released}_{saturday\ i} + \\ & \text{Area 6 Sample Released}_{sunday\ i} +\end{aligned}$$

$$\text{Area 6 Sample Kept}_{species\ day} = \frac{\text{Area 6 Sample Kept}_{weekend}}{2}$$

$$\text{Area 6 Sample Released}_{species\ day} = \frac{\text{Area 6 Sample Released}_{weekend}}{2}$$

54. **If day is weekday and missed the Everglades City census on Saturday and Sunday:**
For each preceeding weekend i:
If performed an Everglades City census on both i$_{saturday}$ and i$_{sunday}$:

$$\begin{aligned}\text{Area 6 Sample Kept}_{weekend} = {} & \\ & \text{Area 6 Sample Kept}_{saturday\ i} + \\ & \text{Area 6 Sample Kept}_{sunday\ i}\end{aligned}$$

$$\begin{aligned}\text{Area 6 Sample Released}_{weekend} = {} & \\ & \text{Area 6 Sample Released}_{saturday\ i} + \\ & \text{Area 6 Sample Released}_{sunday\ i} +\end{aligned}$$

$$\text{Area 6 Sample Kept}_{species\ day} = \frac{\text{Area 6 Sample Kept}_{weekend}}{2}$$

$$\text{Area 6 Sample Released}_{species\ day} = \frac{\text{Area 6 Sample Released}_{weekend}}{2}$$

55. $$\begin{aligned}\text{(O) Areas 1-5 Sample Caught}_{species\ day} = {} & \text{Areas 1-5 Sample Kept}_{species\ day}\ \text{(M)} + \\ & \text{Areas 1-5 Sample Released}_{species\ day}\ \text{(N)}\end{aligned}$$

56. $$\begin{aligned}\text{Area 6 Sample Caught}_{species\ day} = {} & \text{Area 6 Sample Kept}_{species\ day} + \\ & \text{Area 6 Sample Released}_{species\ day}\end{aligned}$$

57. $$\begin{aligned}\text{(P) Areas 1-6 Sample Kept}_{species\ day} = {} & \text{Areas 1-5 Sample Kept}_{species\ day}\ \text{(M)} + \\ & \text{Area 6 Sample Kept}_{species\ day}\end{aligned}$$

58. $$\begin{aligned}\text{(Q) Areas 1-6 Sample Released}_{species\ day} = {} & \text{Areas 1-5 Sample Released}_{species\ day}\ \text{(N)} + \\ & \text{Area 6 Sample Released}_{species\ day}\end{aligned}$$

59. $$\begin{aligned}\text{(R) Areas 1-6 Sample Caught}_{species\ day} = {} & \text{Areas 1-6 Sample Kept}_{species\ day}\ \text{(P)} + \\ & \text{Areas 1-6 Sample Released}_{species\ day}\ \text{(Q)}\end{aligned}$$

60. $$\text{Average Kept Per Flamingo Fishing Vessel}_{species\ day} = \frac{\text{Areas 1-5 Sample Kept}_{species\ day}\text{(M)}}{\text{Proforma Interviews Flamingo Fishing}_{day}\text{(H)}}$$

61. $$\text{Average Released Per Flamingo Fishing Vessel}_{species\ day} = \frac{\text{Areas 1-5 Sample Released}_{species\ day}\text{(N)}}{\text{Proforma Interviews Flamingo Fishing}_{day}\text{(H)}}$$

(S) Areas 1-5 Estimated $\text{Kept}_{species\ day}$ =

62. Average Kept Per Flamingo Fishing $\text{Vessel}_{species\ day}$ ×
Estimated Flamingo Fishing Vessels_{day}

(T) Areas 1-5 Estimated $\text{Released}_{species\ day}$ =

63. Average Released Per Flamingo Fishing $\text{Vessel}_{species\ day}$ ×
Estimated Flamingo Fishing Vessels_{day}

(U) Areas 1-5 Estimated $\text{Caught}_{species\ day}$ =

64. Areas 1-5 Estimated $\text{Kept}_{species\ day}$ (S) +
Areas 1-5 Estimated $\text{Released}_{species\ day}$ (T)

Average Kept Per Everglades City Fishing $\text{Vessel}_{species\ day}$ =

65. $$\frac{\text{Area 6 Sample Kept }_{species\ day}}{\text{Proforma Interviews Everglades City Fishing}_{day}}$$

Average Released Per Everglades City Fishing $\text{Vessel}_{species\ day}$ =

66. $$\frac{\text{Area 6 Sample Released }_{species\ day}}{\text{Proforma Interviews Everglades City Fishing}_{day}}$$

Area 6 Estimated $\text{Kept}_{species\ day}$ =

67. Average Kept Per Everglades City Fishing $\text{Vessel}_{species\ day}$ ×
Estimated Everglades City Fishing Vessels_{day}

Area 6 Estimated $\text{Released}_{species\ day}$ =

68. Average Released Per Everglades City Fishing $\text{Vessel}_{species\ day}$ ×
Estimated Everglades City Fishing Vessels_{day}

Area 6 Estimated $\text{Caught}_{species\ day}$ =

69. Area 6 Estimated $\text{Kept}_{species\ day}$ +
Area 6 Estimated $\text{Released}_{species\ day}$

(V) Areas 1-6 Estimated $\text{Kept}_{species\ day}$ =

70. Areas 1-5 Estimated $\text{Kept}_{species\ day}$ (S)+
Area 6 Estimated $\text{Kept}_{species\ day}$

(W) Areas 1-6 Estimated $\text{Released}_{species\ day}$ =

71. Areas 1-5 Estimated $\text{Released}_{species\ day}$ (T)+
Area 6 Estimated $\text{Released}_{species\ day}$

(X) Areas 1-6 Estimated $\text{Caught}_{species\ day}$ =

72. Areas 1-6 Estimated $\text{Kept}_{species\ day}$ (V)+
Areas 1-6 Estimated $\text{Released}_{species\ day}$ (W)

[1]Prior to the 2006-2007 aerial study by Ault, aerial studies didn't separate vessel counts of the backwater anglers from vessel counts in Florida Bay. The harvest specification method requires that computations be made separately for the Everglades City and Florida Bay regions.

[2]See the output process called "Calculate Trailer Vessel Regression."