Pheasant Stocking in NJ:
A New Approach to Bird Allocation

NJ Division of Fish and Wildlife
Development Process and Next Steps

- Jan 2015: Pheasant & Quail Stamp Buyer Survey
- Jan 2015 – Jan 2016: Internal meetings and draft model development
- Jan 2016: Presentation to F&G Council’s Game Committee
- March 2016: Presentation to Fish & Game Council
- June 2016: Presentations at State Federation
- June 2016: P&Q Stamp Buyers Stakeholder Meetings
- July/August 2016: Revise & Finalize
- September 2016: Presentation to F&G Council – Vote to Adopt
- Sept/October 2016: Division Reps present
- November 2016: Begin Stocking according to Pheasant Allocation Model
Stocking Summary

• ~ 55,000 pheasant/year

• 23 WMAs (plus DWGNR and Fort Dix)

• Birds divided by Region (North, Central, South)

• 15 days of stocking (Nov. – Dec.)
Current Allocation Method

• **Step 1:** Birds divided by Region
  - North 53%
  - Central 23.5%
  - South 23.5%

• **Step 2:** Birds divided within region to WMAs & stocking day
## NJ Division of Fish and Wildlife

### Days to Hunt Pheasants During the 2015 Stocking Season

<table>
<thead>
<tr>
<th>Region</th>
<th>North Jersey</th>
<th>Central Jersey</th>
<th>South Jersey</th>
<th>Statewide Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area</strong></td>
<td><strong>Sat. 07-Nov</strong></td>
<td><strong>Sat. 10-Nov</strong></td>
<td><strong>Sat. 19-Dec</strong></td>
<td><strong>Statewide Totals</strong></td>
</tr>
<tr>
<td>Flatsbrook</td>
<td>840</td>
<td>320</td>
<td>320</td>
<td>1,260</td>
</tr>
<tr>
<td>Whittingham</td>
<td>600</td>
<td>190</td>
<td>190</td>
<td>600</td>
</tr>
<tr>
<td>Walpack</td>
<td>600</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Black River</td>
<td>600</td>
<td>180</td>
<td>180</td>
<td>300</td>
</tr>
<tr>
<td>Berkshire Valley</td>
<td>600</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Clinton</td>
<td>600</td>
<td>180</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>Paugus</td>
<td>300</td>
<td>130</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Delaware Water Gap N.R.A.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Northern Region Totals</strong></td>
<td><strong>3,780</strong></td>
<td><strong>1,210</strong></td>
<td><strong>1,210</strong></td>
<td><strong>3,230</strong></td>
</tr>
<tr>
<td><strong>Central Region Totals</strong></td>
<td><strong>1,520</strong></td>
<td><strong>380</strong></td>
<td><strong>380</strong></td>
<td><strong>1,260</strong></td>
</tr>
<tr>
<td><strong>South Jersey Totals</strong></td>
<td><strong>1,520</strong></td>
<td><strong>380</strong></td>
<td><strong>380</strong></td>
<td><strong>1,260</strong></td>
</tr>
<tr>
<td><strong>Statewide Totals</strong></td>
<td><strong>6,400</strong></td>
<td><strong>2,210</strong></td>
<td><strong>2,160</strong></td>
<td><strong>5,000</strong></td>
</tr>
</tbody>
</table>

Thanksgiving Day is Nov. 26, 2015

**Note:** The percentages indicate the ratio of days with pheasant stock. The numbers in circles represent the total counts for each region.
Current Allocation Approach

- Criticisms regarding unequitable regional distribution
- Concerns regarding bird/hunter densities and safety
- Criticisms about bird/hunter densities and quality of hunt
- Not designed to allocate birds based on objective & measurable parameters
- Makes allocating birds to “new WMAs” (or from “deleted WMAs”) or from varying pheasant production numbers a subjective process
New Allocation Model

Goal: Develop an *objective approach* for distributing pheasant that incorporates biological, physical, and/or social factors and results in an equitable allocation of birds among WMAs to *maximize hunter safety & satisfaction*
2014 Pheasant & Quail Stamp Buyers Survey

- Conducted Spring 2015
- Emailed to 6,643 stamp buyers from 2014
- 1,189 successfully completed survey (1,189/12,296) ~10%
Safety & Crowding
on stocked WMAs

Stocked WMAs sometimes or always too crowded = 89%

Sometimes apprehensive about personal safety = 62%

Usually feel unsafe when hunting stocked WMAs = 8%

Data from 2014 Pheasant & Quail Stamp Buyer Survey
Safety & Crowding on stocked WMAs

**Near Miss Event:**
Witnessed = 31%
Involved in = 14%

Hit by spent pellets = 45%

**Hunting Accident:**
Witnessed = 5%
Involved in = 2%

Data from 2014 Pheasant & Quail Stamp Buyer Survey
Safety & Crowding on stocked WMAs

Crowd Avoidance

24% of survey respondents sometimes avoided the stocked WMA closest to their home because it was too crowed

Data from 2014 Pheasant & Quail Stamp Buyer Survey
Quality of Hunt

What Contributes Most to Hunter Enjoyment

1. Number of birds stocked
2. Size of area stocked (or area to hunt)
3. Habitat quality
4. Proximity to home

Data from 2014 Pheasant & Quail Stamp Buyer Survey
Quality of Hunt
- Number of Birds Stocked

**Hunters Follow the Birds**

**Opening Day Pheasants vs. Car Counts**

\[ R^2 = 0.8636 \]

**Pheasants Stocked vs. Most Frequently Hunted**

\[ R^2 = 0.76 \]
Quality of Hunt
- Size of Area Stocked

2,801 Acres Stocked
Quality of Hunt
- Size of Area Stocked

248 Acres Stocked
Quality of Hunt - Size of Area Stocked

3,721 Field-acres Stocked
Quality of Hunt - Size of Area Stocked

- Field-acres Stocked
- Pheasants Stocked
Quality of Hunt - Proximity to Home

Survey Question

How far would you be **willing** to drive (one-way) to hunt stocked pheasants and have a quality pheasant hunting experience in NJ?

*Data from 2015 Pheasant & Quail Stamp Buyer Survey*
Quality of Hunt - Proximity to Home

Survey Question

How far would you be willing to drive (one-way) to hunt stocked pheasants and have a quality pheasant hunting experience in NJ?

- 4% No more than 10 miles
- 22% Between 11 and 20 miles
- 38% Between 21 and 40 miles
- 23% Between 41 and 60 miles
- 13% More than 61 miles

Data from 2015 Pheasant & Quail Stamp Buyer Survey
Quality of Hunt - Proximity to Home

Survey Question

How far would you be willing to drive (one-way) to hunt stocked pheasants and have a quality pheasant hunting experience in NJ?

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4%</td>
<td>No more than 10 miles</td>
</tr>
<tr>
<td>22%</td>
<td>Between 11 and 20 miles</td>
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<tr>
<td>38%</td>
<td>Between 21 and 40 miles</td>
</tr>
<tr>
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</tr>
<tr>
<td>13%</td>
<td>More than 61 miles</td>
</tr>
</tbody>
</table>

74%
New Allocation Approach

Maximize hunter safety and satisfaction by distributing pheasants according to an objective formula that uses “field-area stocked” and “proximity to stamp buyers” for each WMA to determine pheasant allocation on an individual WMA basis.
New Allocation Model

\[
WMA_1 \% \text{ Pheasant} = \frac{P_1}{P_{\text{sum}}} \times 100
\]

\[P = A \ (D+1) \ O\]

\[P = \text{ pheasant factor; } A = \text{ area variable; } D = \text{ proximity to stamp buyer variable; } O = \text{ ownership variable}\]
New Allocation Model

\[ \text{WMA}_1 \% \text{ Pheasant} = \left( \frac{P_1}{P_{\text{sum}}} \right) \times 100 \]

\[ A = (1^{st} 60 \text{ ac} \times 1) + (\text{ac} > 60 \times 0.1) \]

\[ P = A (D+1) O \]

\( P = \text{pheasant factor}; \ A = \text{area variable}; \ D = \text{proximity to stamp buyer variable} \)
New Allocation Model

\[ \text{WMA}_1 \% \text{ Pheasant} = \frac{P_1}{P_{\text{sum}}} \times 100 \]

\[ A = (1^{st} 60 \text{ ac} \times 1) + (\text{ac} > 60 \times 0.1) \]

\[ P = A (D+1) \]

\[ D = 0 \text{ if } <30\% \text{ w/in 40 miles} \]
\[ 0.15 \text{ if } 30-40\% \text{ w/in 40 miles} \]
\[ 0.3 \text{ if } 40-50\% \text{ w/in 40 miles} \]
\[ 0.5 \text{ if } >50\% \text{ w/in 40 miles} \]

\[ P = \text{ pheasant factor}; \ A = \text{ area variable}; \ D = \text{ proximity to stamp buyer variable} \]
New Allocation Model

AREA STOCKED

Field Acreage w/o Buffer

DWG-NRA  Assunpink  Millville  Clinton  Colliers Mill  Pequest  Whittingham  Dix  Flatbrook  Winslow  Black River  Stafford Forge  Nantuxent  Mad Horse  Tuckahoe  Glassboro  Medford  Mahasquan  Greenwood  Heislerville  Port Republic  Walpack  Berkshire Val.  Manahawkin
New Allocation Model
Proximity to Stamp Buyers

40 Mile Radius
Zip Codes
New Allocation Model
Proximity to Stamp Buyers
New Allocation Model

Does the model “work” for you?
New Allocation Model
Does the model “work” for you?

• Is our goal hunter safety and hunter satisfaction?
New Allocation Model

Does the model “work” for you?

• Is our goal hunter safety and hunter satisfaction?

• Is an objective approach to pheasant allocation (*using measurable parameters*) appropriate?
New Allocation Model
Does the model “work” for you?

• Is our goal hunter safety and hunter satisfaction?

• Is an objective approach to pheasant allocation (using measurable parameters) appropriate?

• Does setting stocking levels according to area stocked & proximity to stamp buyers increase overall hunter safety & satisfaction?
New Allocation Model
Does the model “work” for you?

• Is our goal hunter safety and hunter satisfaction?
• Is an objective approach to pheasant allocation *(using measurable parameters)* appropriate?
• Does setting stocking levels according to area stocked & proximity to stamp buyers increase overall hunter safety & satisfaction?
• Should other parameters be included in the model?
New Allocation Method

**New Method**

- **Step 1:** Birds allocated to individual WMAs based on results of the Pheasant Allocation Model to obtain season totals for each WMA.

- **Step 2:** Birds numbers spread across season (15 stocking days) by Regional Superintendent for each Region.
Assisting Stamp Buyers w/Change

- Stakeholder Involvement
- Adequate Advanced Notice
- Pheasant-Stocked Area Maps
- Phased in Change
New Allocation Results

2016 (Year 1 of 2)

Year 1 Regional Totals

<table>
<thead>
<tr>
<th>Region</th>
<th>2015</th>
<th>Revised</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>29000</td>
<td>25453</td>
<td>-3547</td>
</tr>
<tr>
<td>Central</td>
<td>13000</td>
<td>14722</td>
<td>1722</td>
</tr>
<tr>
<td>South</td>
<td>13000</td>
<td>14973</td>
<td>1973</td>
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</table>
New Allocation Results

2017 (Year 2 of 2)

Year 2 Regional Totals

<table>
<thead>
<tr>
<th>Region</th>
<th>2015</th>
<th>Revised</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>29000</td>
<td>21907</td>
<td>-7093</td>
</tr>
<tr>
<td>Central</td>
<td>13000</td>
<td>16445</td>
<td>3445</td>
</tr>
<tr>
<td>South</td>
<td>13000</td>
<td>16946</td>
<td>3946</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Birdsthday</th>
<th>2015</th>
<th>New</th>
<th>Change</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birds</td>
<td>3.20</td>
<td>2.52</td>
<td>0.68</td>
<td>0.06</td>
</tr>
<tr>
<td>MAX</td>
<td>16.81</td>
<td>4.54</td>
<td>-12.27</td>
<td>-73.63</td>
</tr>
<tr>
<td>Min</td>
<td>0.37</td>
<td>0.44</td>
<td>0.07</td>
<td>0.20</td>
</tr>
</tbody>
</table>
Questions?

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(609) 358-2072