

# Sea Duck Management & Monitoring

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Washington  
Department of  
**FISH &  
WILDLIFE**

Department of Fish and Wildlife

27 species – diverse life histories & habitat requirements

## **DUCKS**

# DUCKS (27 species)

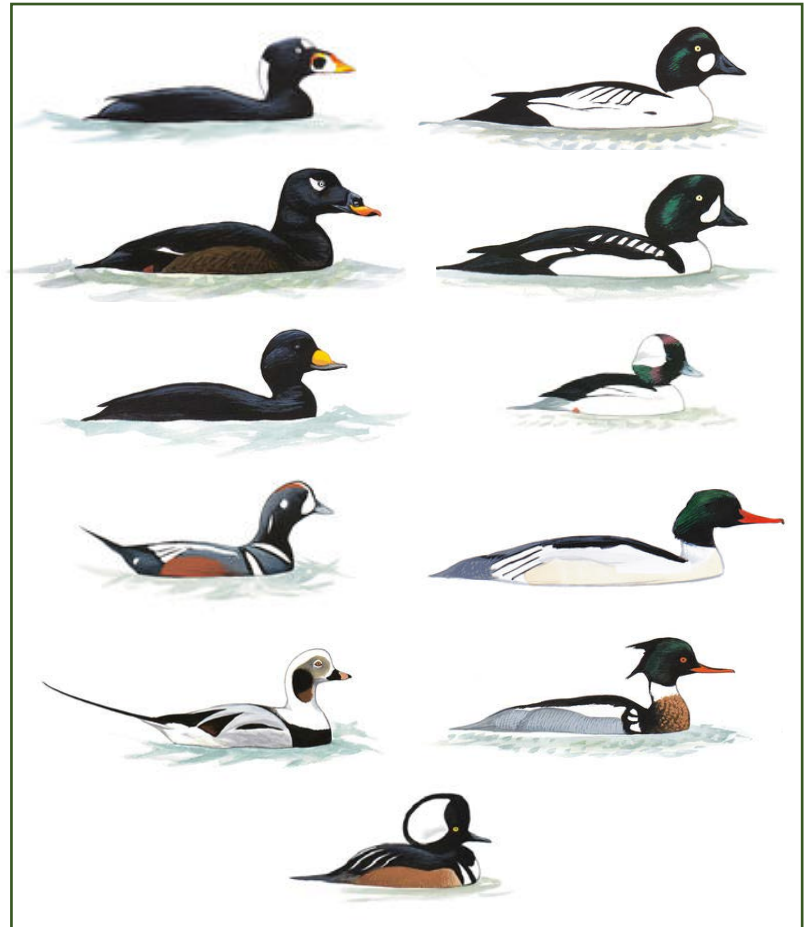
## Dabbling (10)



## Diving (6)



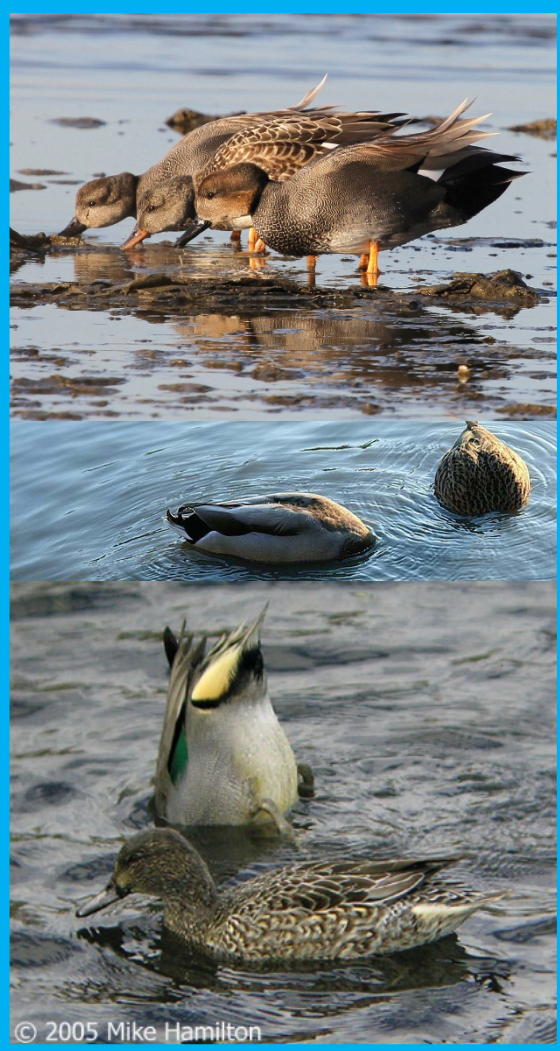
## Sea (11)



*\*Note: thank you D. Sibley for being a much better illustrator than me.*

# Water shapes food availability...

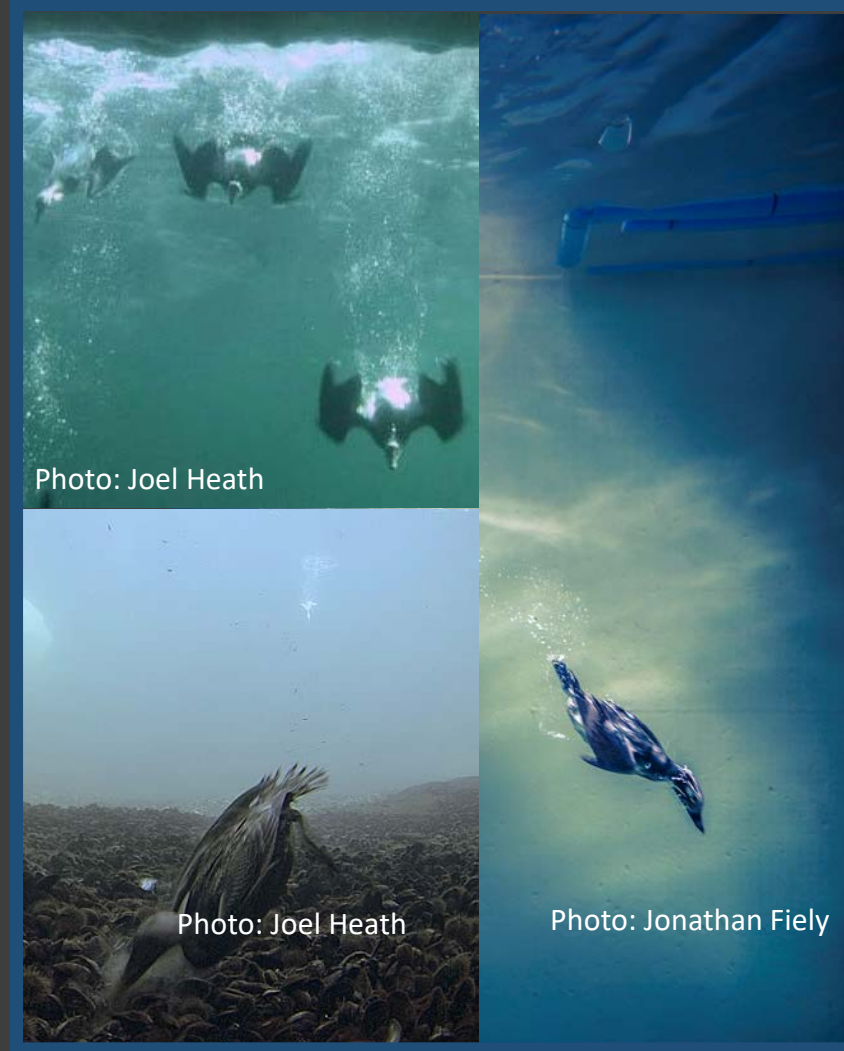
## Dabbling



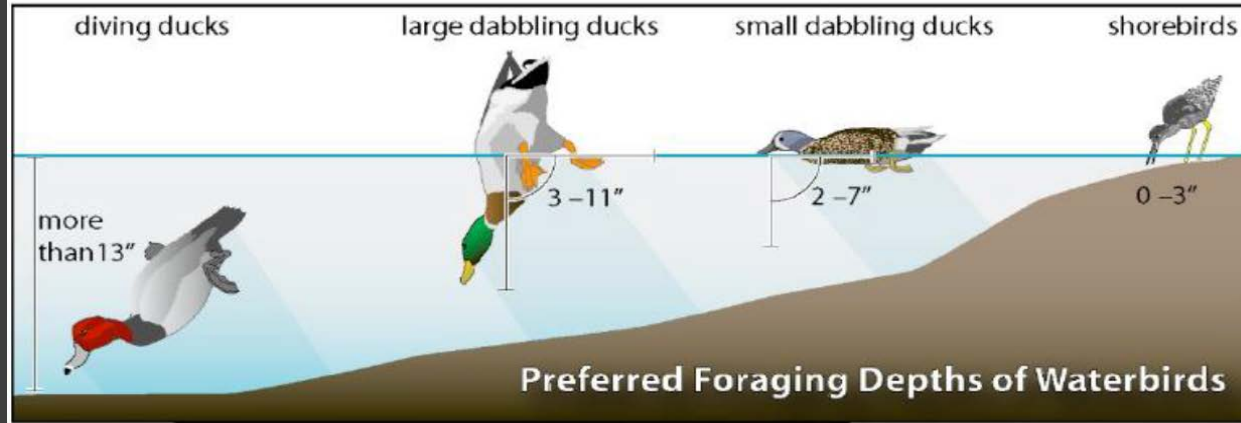
## Diving



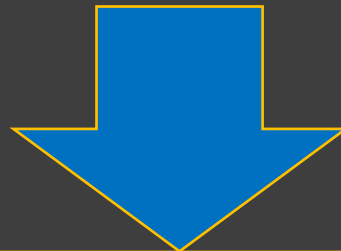
## Sea



# ... and finding food is essential.



Is there enough? Can you get to it? Is it valuable enough?



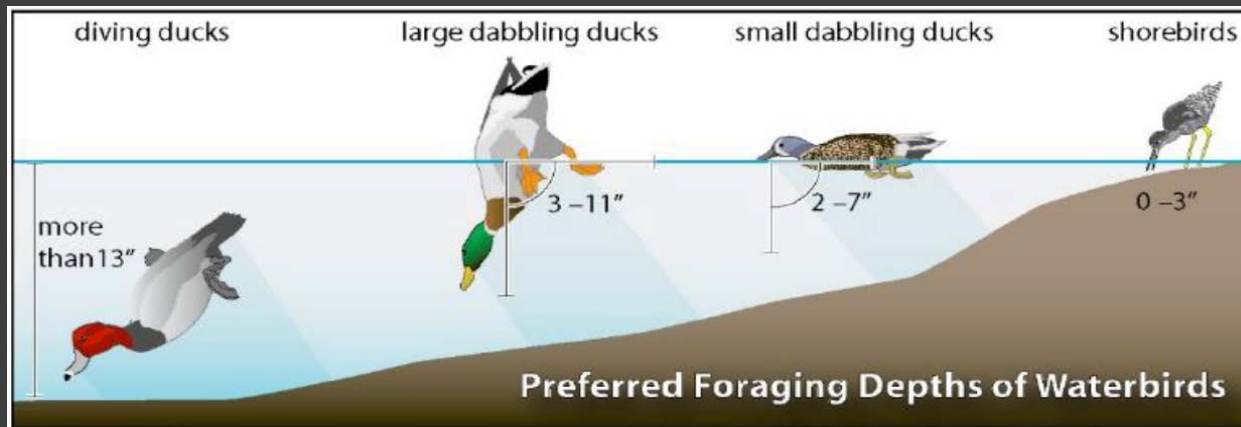
Distribution (bird) & Abundance (local)

Body Condition & Essential Nutrients

Survival & Growth

Reproductive Potential & Population Size

# ... and finding food is essential.



**Is there enough?**

QUANTITY



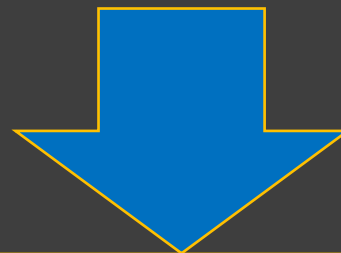
**Can you get to it?**

DISTRIBUTION & ACCESSIBILITY



**Is it valuable enough?**

QUALITY & PROFITABILITY



**Distribution (bird) & Abundance (local)**

**Body Condition & Essential Nutrients**

**Survival & Growth**

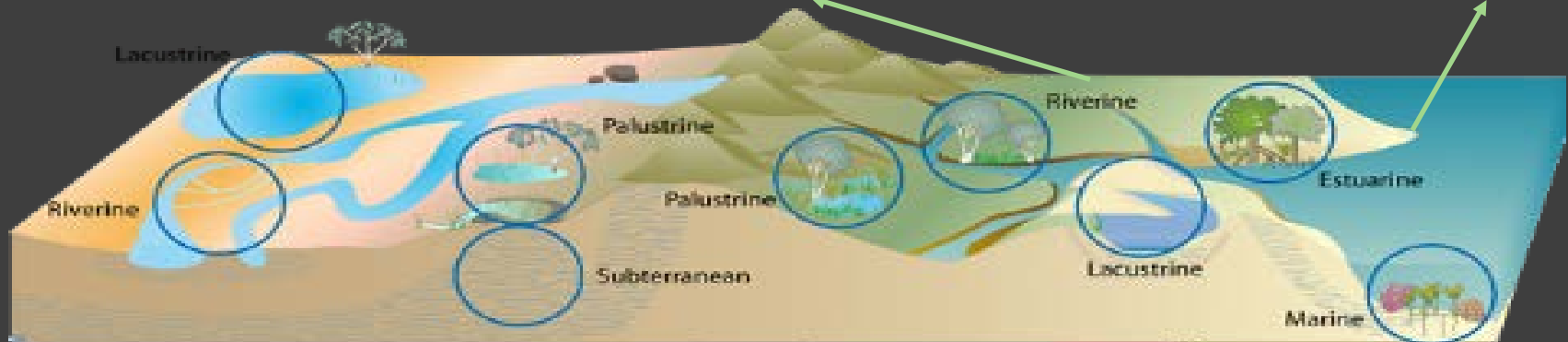
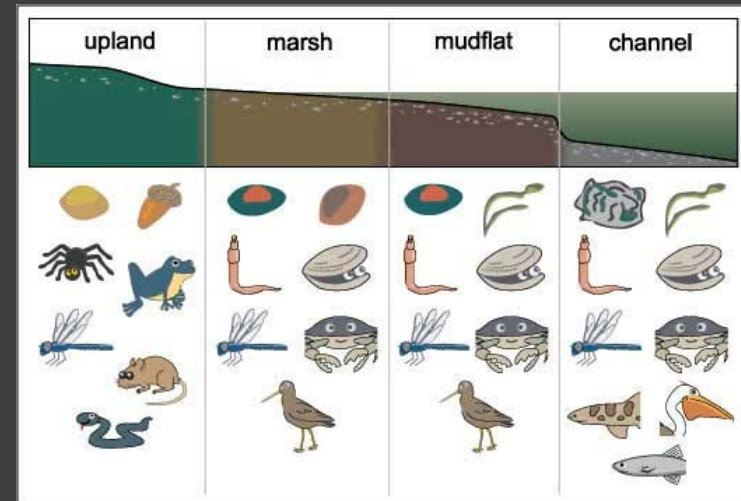
**Reproductive Potential & Population Size**



# Wetland type influences waterfowl community

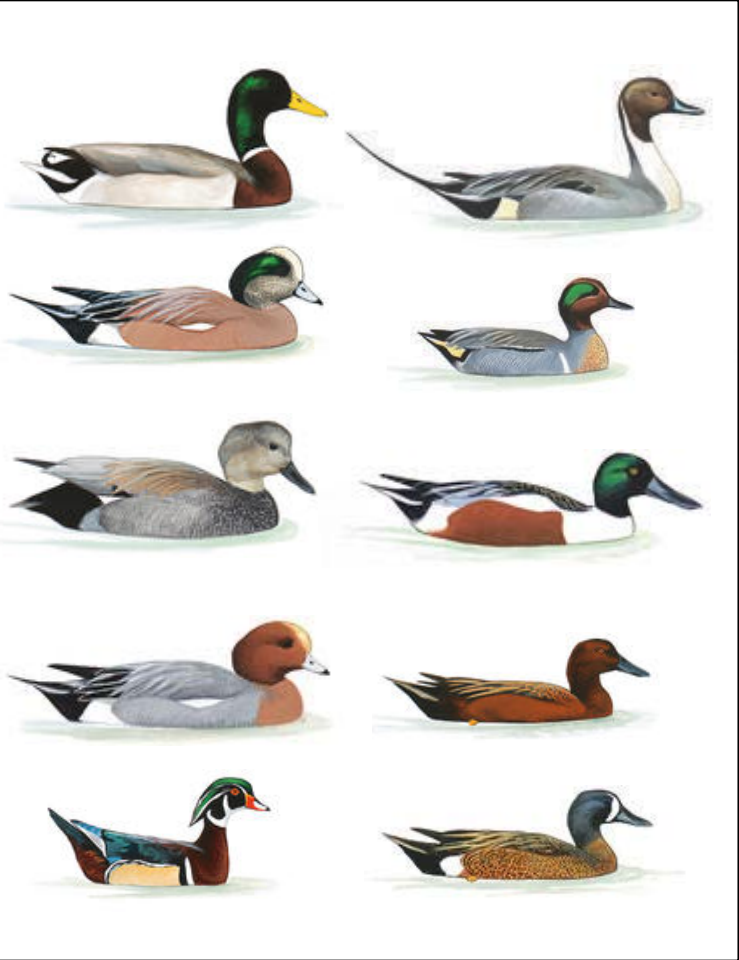
Through:

- Seasonal Requirements
- Food value benefits/tradeoffs
- Physical constraints
- Competition

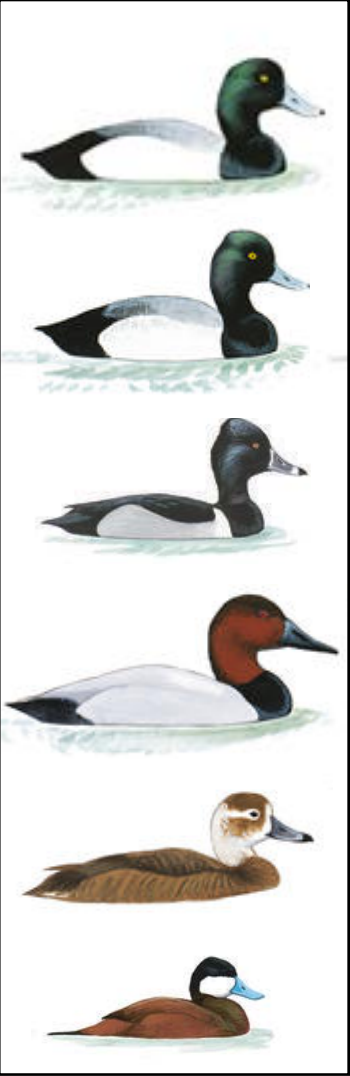


# DUCKS (27 species)

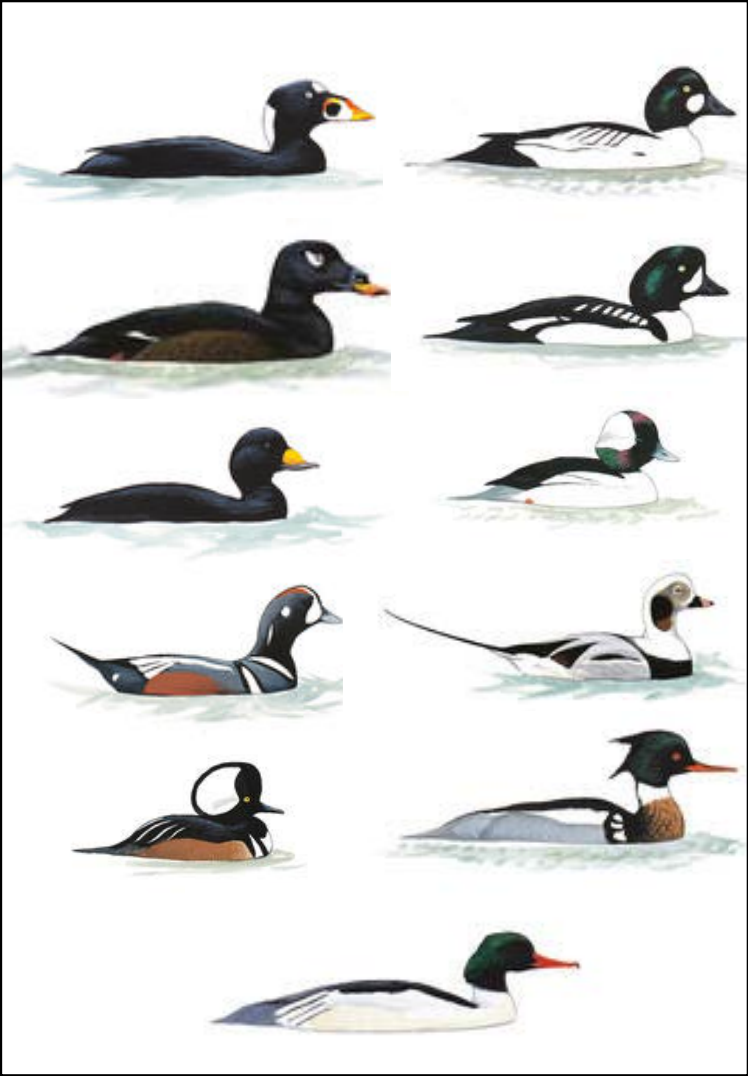
Dabbling (10)



Diving (6)



Sea (11)





# SEA DUCKS (11 species): >200,000 individuals



**Surf Scoter;**  
boreal forest



**Common Goldeneye;**  
boreal widespread



**White-winged Scoter;**  
parkland transition



**Barrow's Goldeneye;**  
boreal narrow



**Black Scoter;** western  
Alaska tundra



**Bufflehead;** boreal  
widespread



**Long-tailed Duck;**  
arctic coast tundra



**Harlequin Duck;**  
alpine streams  
Cascades & Rockies



**Red-breasted Merganser;**  
arctic coast tundra



**Hooded Merganser;** coast  
riparian, beaver bogs



**Common Merganser;**  
riverine riparian

Sea ducks are not mallards, and that matters

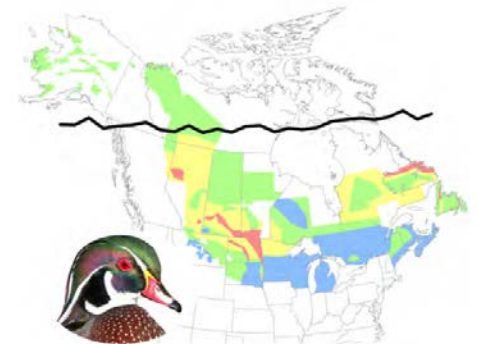
# **MONITORING & MANAGEMENT**

# Monitoring

- Waterfowl Breeding Population and Habitat Survey (WBPHS - Traditional Survey Area):
  - USFWS aircraft
  - Several crews and observers (USFWS & state Bios)
  - Start in May
  - Must be transcribed and analyzed by August.



**Waterfowl**  
*Population Status, 2019*





Identification

Monitoring –  
Surveys

Capture & Mark

Research



# Identification Monitoring – Surveys

## “PSAMP” since 1994



Winter Sea Duck Transects  
within the Inner Marine Waters  
of Washington State.

Set 2 of 3 from the 3-year  
survey rotation.



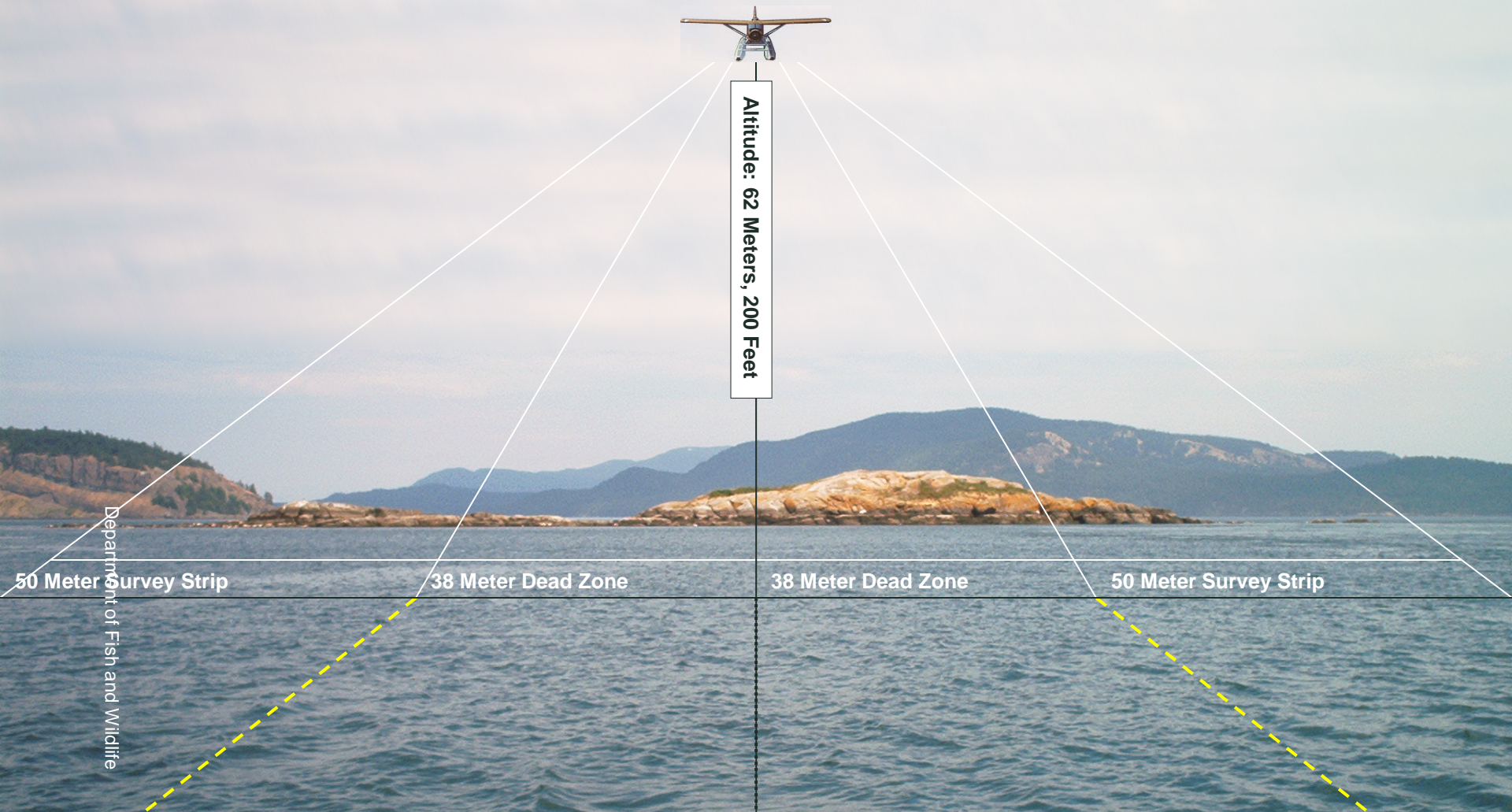
Esri, DeLorme, GEBCO, NOAA, NGDC, and other contributors

Department of Fish and Wildlife





# Survey Strip Diagram



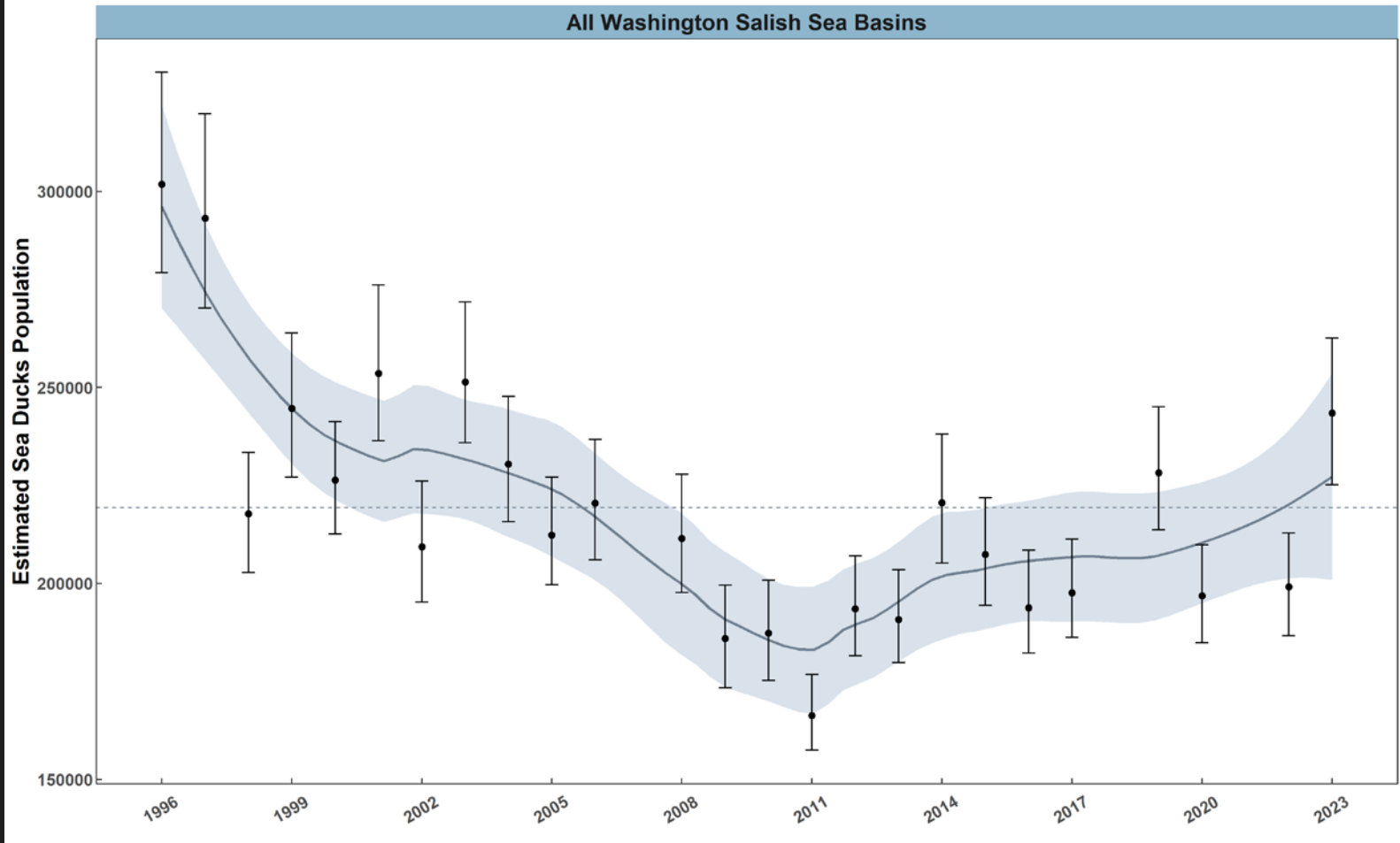
# What do you see?





# Sea Ducks (*Merginae*)

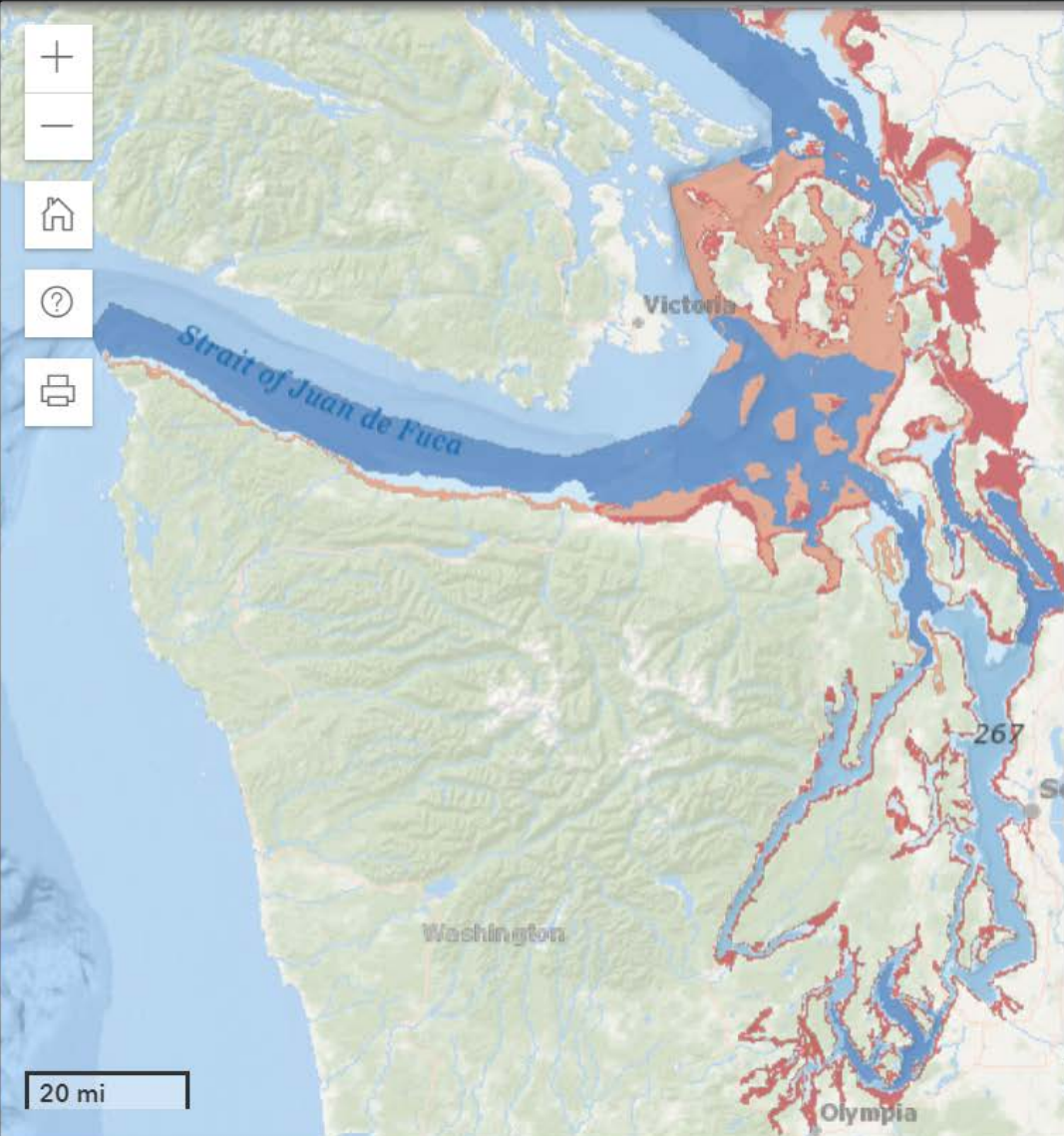
All Washington Salish Sea Basins



## Status & Trends

Department of Fish and Wildlife



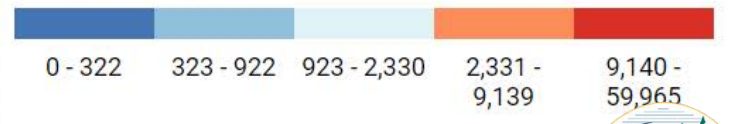
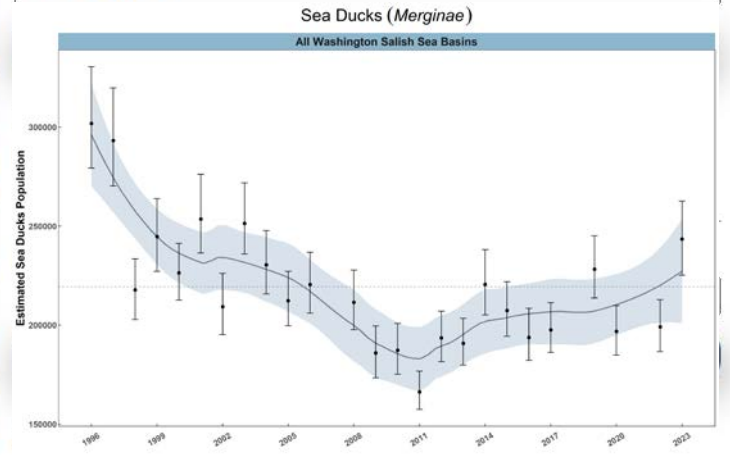


## Search Winter Seabirds

Run a Search and click on the map to view results

Select a year:

Select a species:



Click on the map to view results



# Distribution and Context

# Capture & Mark Research



Department of Fish and Wildlife

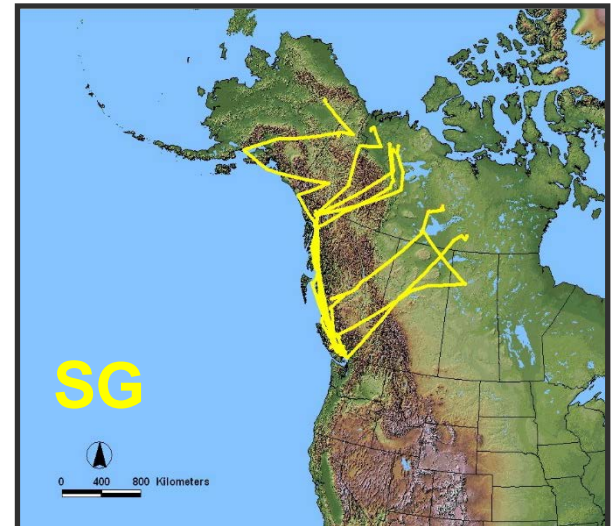
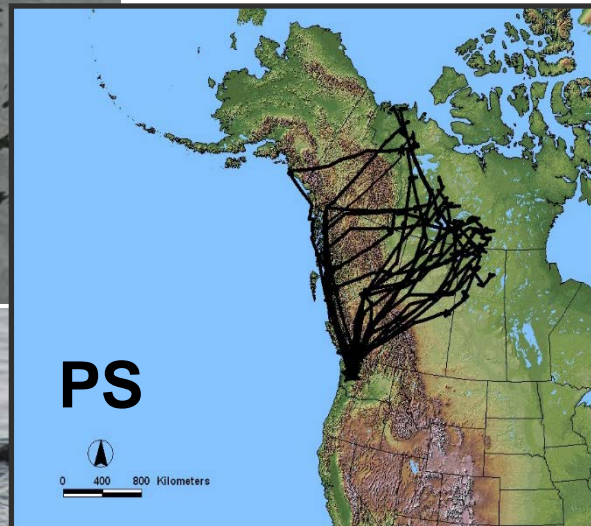
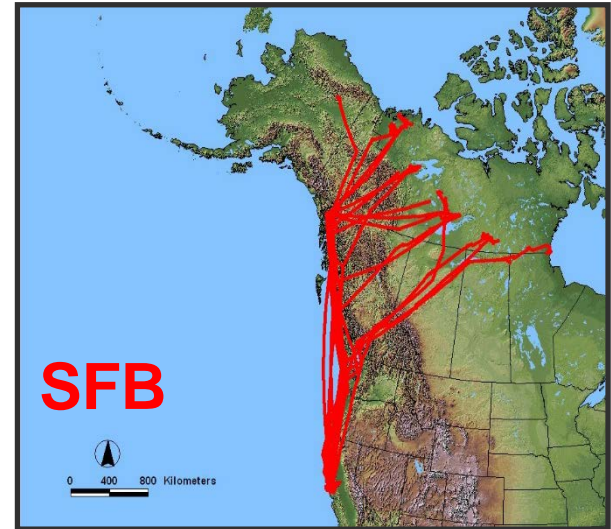
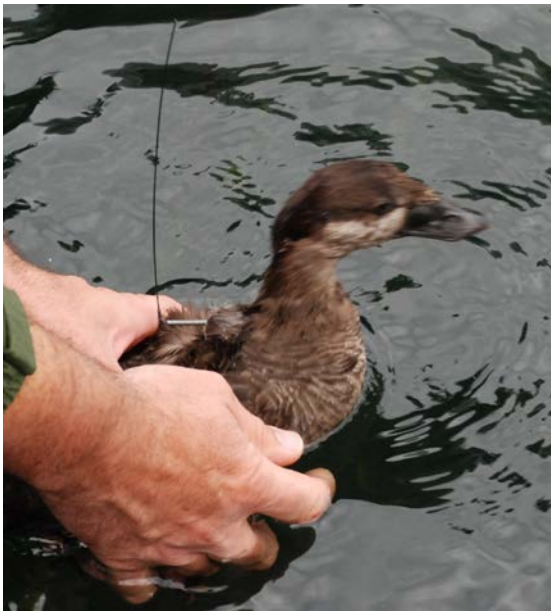


**WATERFOWL  
SECTION**



Washington Department of  
**FISH and WILDLIFE**

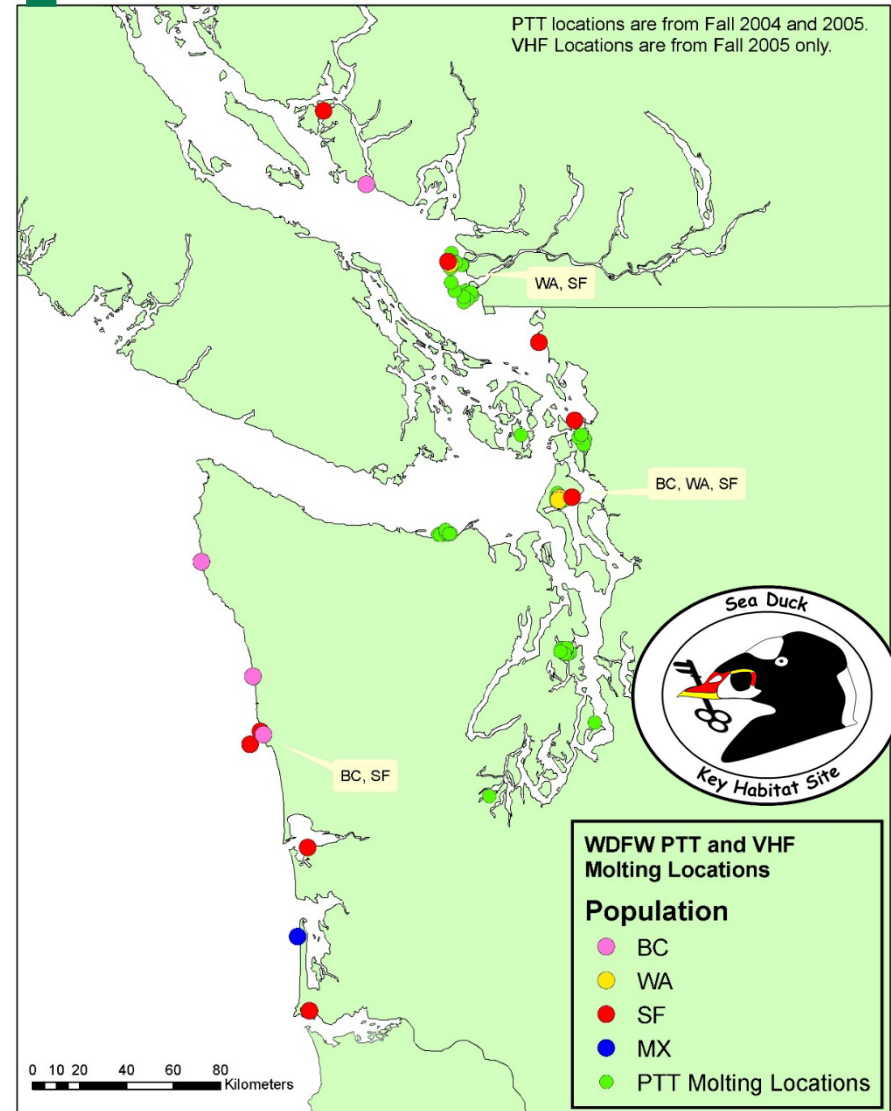
# Migration Connectivity



# Non-breeding requirements

## Molting Locations Presently Known for Surf Scoters in Washington

- Yellow = Washington VHF
- Green = Washington PTT
- Red = San Francisco Bay VHF
- Pink = British Columbia VHF
- Blue = Baja Mexico VHF



# Flyway-level partnerships

[No. 156](#) Finalizing Digital Image Analyses for Sea Duck Winter Detectability in Puget Sound

– **DSP2123** - UW-WACFWRU Sea Duck Habitat Modeling

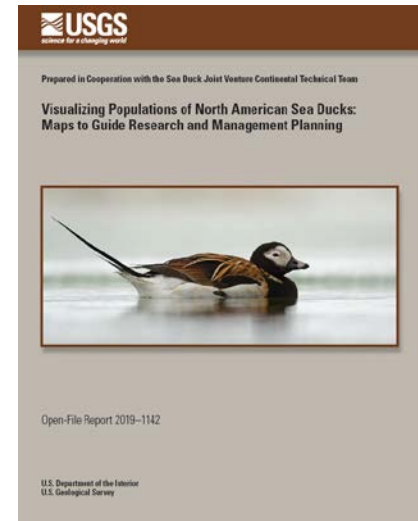
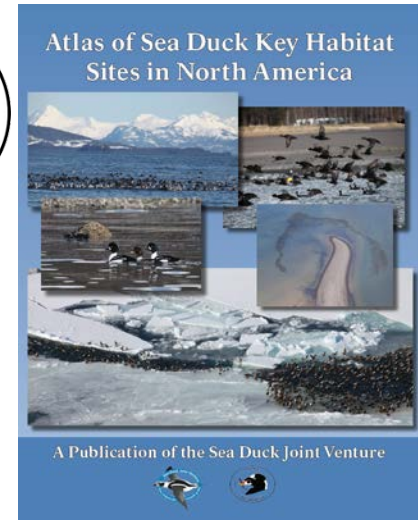
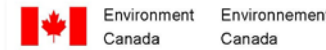
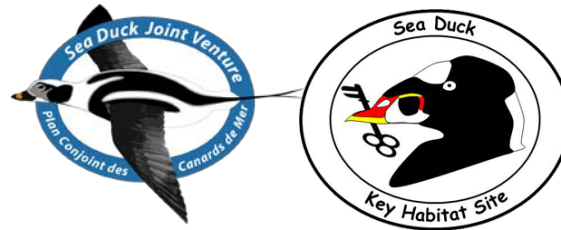
[No. 166](#) Advancing Trans-boundary Sea Duck Conservation Actions: Surf Scoter Habitat Use and Movement Patterns in the Salish Sea

[No. 168](#) Characterization of the Migratory Patterns, Connectivity, Philopatry and Timing of the Western Harlequin Duck Population throughout the Annual Cycle

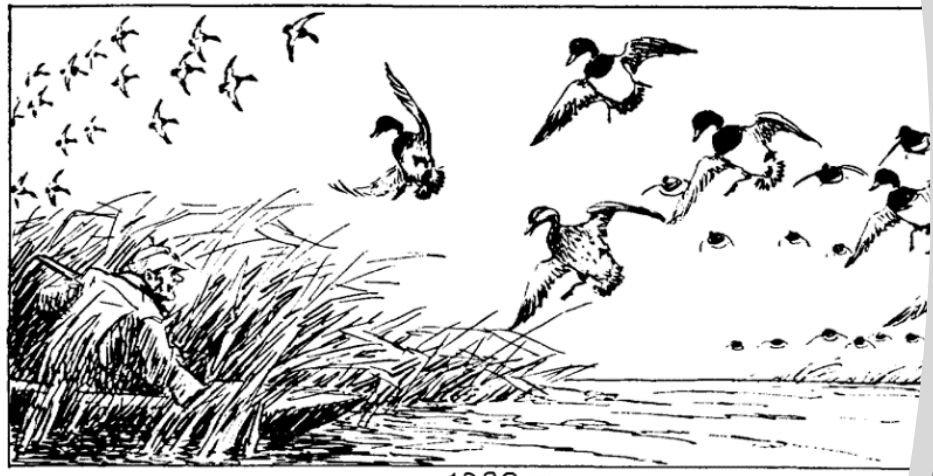
[No. 169](#) Engaging a Transboundary Expert Network to Prioritize Coastal and Marine Habitat Management for Sea Ducks in the Salish Sea

[No. 170](#) A Bioenergetic Model to Evaluate Winter Food Limitation in Barrow's Goldeneyes and Consequences of Climate Change

[No. 173](#) Unifying the coast: Advancing image-based surveys to support sea duck conservation along the Pacific Flyway



Flyway-level vs. State-level  
**MANAGEMENT**



— 1920 —



1930



# Flyway Management of Migratory Birds

## Migratory Bird Treaty Act



## Flyway Councils



## North American Waterfowl Management Plan



## Hunter-derived funds & federal appropriations

## Partnerships

Department of Fish and Wildlife





# Waterfowl & Migratory Game Birds

In Washington state\*,  
includes 39 regularly encountered species:

Common Name	Scientific Name	# species (populations)
migratory waterfowl	<i>Anatidae</i>	35 (16)
American coot	<i>Fulica americana</i>	1
common snipe	<i>Gallinago gallinago</i>	1
band-tailed pigeon	<i>Columba fasciata</i>	1
mourning dove	<i>Zenaida macroura</i>	1

\* Washington state is part of the Pacific Flyway, one of four administrative/biological flyways in North America.

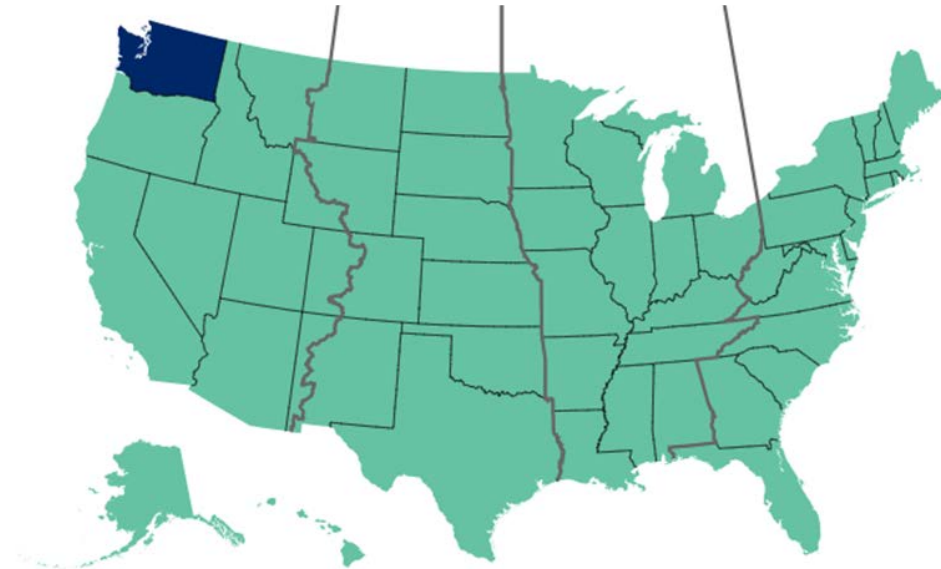


# Where is the Decision-point?

<b>DUCK SEASONS</b>	<b>FEDERAL LAW</b>	<b>FEDERAL FRAMEWORK</b>	<b>STATE WAC</b>
More than 107 days?	<b>X</b>		
Hunting into February?	<b>X</b>		
Special Hunt Dates	<b>X</b>	<b>x</b>	<b>X</b>
Duck Harvest Strategies (Adaptive Harvest Management)	<b>x</b>	<b>X</b>	
Change to sea duck limits?			<b>X</b>

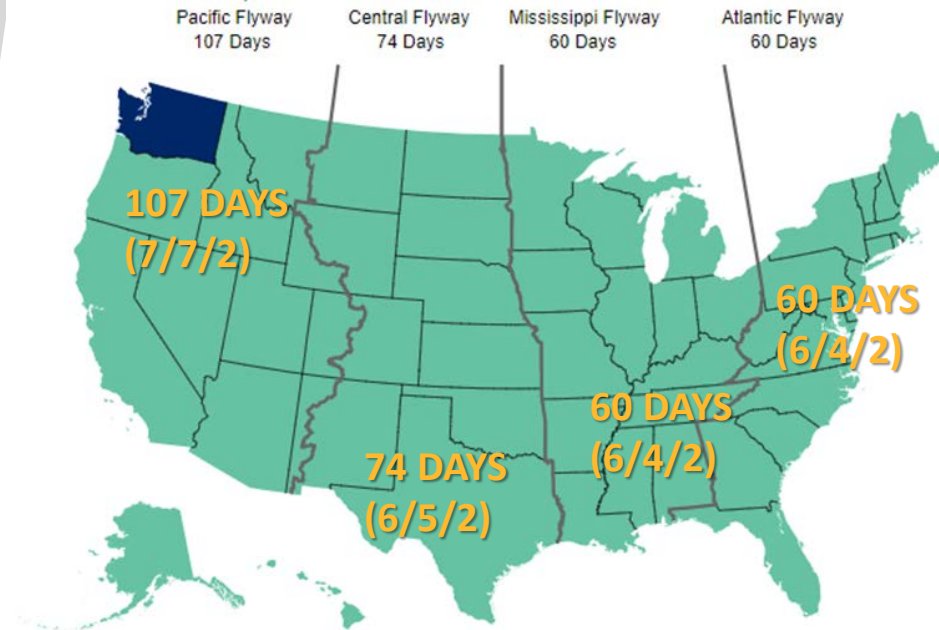
# Federal Law

- **Migratory gamebirds allowable season dates:**
  - Sept. 1 – March 10
- **Maximum number of days:**
  - 107 days
  - In any geographically-defined area for any species on which open season are authorized. (16.U.S.C.704c2Bii)
- **Duck seasons:**
  - No later than January 31<sup>st</sup> (16.U.S.C.704c1B)



# Federal Regulations, Frameworks & Flyway Cooperation

- **Adaptive Harvest Management (AHM) & Harvest Strategies:**
  - Total days allowed by flyway
  - Bag-limit configuration (total/#mall/#hen mall)
  - Species sub-limits for pintail, scaup, canvasback & redheads
- **Flyway Goose Management Plans:**
  - zone structure, season segments & dates structure
  - Upper bag-limit quotas



## ADAPTIVE HARVEST MANAGEMENT

Total duck bag limit

# mallard

# hen mallard

## NATIONAL HARVEST STRATEGIES

#pintail

#scaup

#canvasback

#redhead

# State Law & Regulations

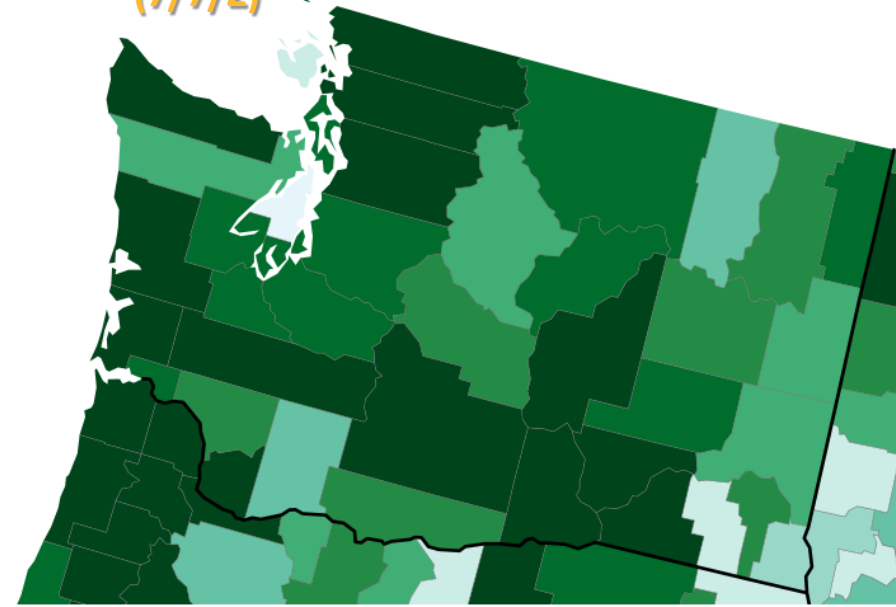
- **State Laws (RCW):**
  - Most state laws mimic or augment MBTA
  - waterfowl = gamebird
- **State Regulations (WAC):**
  - WAC 220-416-060
  - Final Season dates & structure w/in framework
  - Implement AHM, Harvest Strategy, Goose Management Plan bag limits
  - **Set more restrictive regulations where necessary (example: sea duck bag limits)**

## Waterfowl harvest by county

Click on a county for more information, double click or mouse scroll to zoom

Duck Rankings **Goose Rankings**

**107 DAYS**  
**(7/7/2)**



Low harvest High harvest



Hen

Drake



# DUCKS (27 species)

## Unrestricted Daily bag-limit Species

## Restricted Sub-7 daily bag-limit Species (Harlequin Duck Closed to Harvest for 2022-23 season)

**Dabbling (10 species)**

Mallard (male)  
American Wigeon  
Cinnamon Teal  
Eurasian Wigeon  
Blue-winged Teal

Green-winged Teal  
Wood Duck  
Northern Shoveler  
Gadwall

**Diving (6 species)**

Ring-necked Duck  
Ruddy Duck

**FEMALE Mallard = 2**  
Northern Pintail = 1

**SCAUP**

Scaup = 2  
Canvasback = 2  
Redhead = 2

**Sea (11 species)**

Common Merganser  
Red-breasted Merganser  
Bufflehead  
Hooded Merganser

**SCOTER**

Scoters = 2

**GOLDENEYE**

Goldeneyes = 2

Long-tailed Duck = 2  
Harlequin Duck = **CLOSED to HARVEST**



**REQUIRE MANDATORY HARVEST REPORT CARD**

*\*Note: thank you D. Sibley for being a much better illustrator than me.*

# Harvest Strategy

- Thresholds based on 3yr winter scoter estimate (WDFW GMP)
- Harvest Strategy (2011 & 2013 presented to/endorsed by Commission):
  - suggesting thresholds of bag-limit adjustments for scoter aggregate;
  - keeps 107 days
- Scoters see table
- Per WDFW Sea Duck Harvest Strategy: For harlequin, long-tail, and goldeneye;
 

“IF 3yr-avg <70% of 2007-09 average THEN additional restrictions”

  - HADU = 2,839
  - LTDU = 4,542
  - UNGO = 24,853

Regulation Package	Winter Index (3-yr)*	Bag Limit
Closure	<45,000	0
Restrictive	45,000-67,500	2
Moderate	67,500-135,000	4
Liberal	>135,000	7

## Mandatory Harvest Report requirement (2004)

SEADUCK			
Did you hunt for seaducks? ___Yes___ No			
How many total days did you hunt for these species? _____			
MARK A SPECIES CODE FOR EACH BIRD HARVESTED (MARK ONE LINE FOR EACH BIRD HARVESTED)			
SPECIES CODE*: B=BLACK SCOTER, H=HARLEQUIN, L=LONG-TAILED DUCK, S=SURF SCOTER, W=WHITE-WINGED SCOTER			
COUNTY	MO (1-12)	DAY (1-31)	SPECIES CODE*
Ex. CLAL	10	25	B

WINTER INDEX – Washington portion of the SALISH SEA  
HARVEST – Mandatory Harvest Reports  
**MANAGEMENT**



# Winter Index - SCOTERS

SPECIES	2022-23 EST.	RANK	3-YR AVG (WINTER INDEX)	LONG-TERM AVG
SCOTERS	78,023	12 <sup>th</sup> of 25	66,309.0	79,845.0
Black Scoter	1,099	15 <sup>th</sup> of 25	1,382.7	1,458.8
Surf Scoter	40,328	14 <sup>th</sup> of 25	37,410.3	42,883.2
White-winged Scoter	23,987	1 <sup>st</sup> of 25	17,734.7	16,110.0



# Harvest Strategy Comparison - SCOTERS

SPECIES	ABOVE CLOSURE THRESHOLD?	3-YR AVG (WINTER INDEX)	2022-23 HARVEST EST.	% HARVEST/ WINTER INDEX
SCOTERS	YES	66,309.0	805	1.2%
Black Scoter	NA	1,382.7	85	6.1%
Surf Scoter	NA	37,410.3	550	1.5%
White-winged Scoter	NA	17,734.7	170	<1%



# Winter Index - GOLDENEYE

SPECIES	2022-23 EST.	RANK	3-YR AVG (WINTER INDEX)	LONG-TERM AVG
GOLDENEYES	53,560	4 <sup>th</sup> of 25	45,679.0	42,670.0
Barrow's Goldeneye	9,082	19 <sup>th</sup> of 25	9,998.7	11,625.3
Common Goldeneye	19,981	8 <sup>th</sup> of 25	16,596.7	16,150.1
Bufflehead	72,317	7 <sup>th</sup> of 25	64,601.0	66,530.7



# Harvest Strategy Comparison - GOLDENEYES

SPECIES	ABOVE CLOSURE THRESHOLD?	3-YR AVG (WINTER INDEX)	2022-23 HARVEST EST.	% HARVEST/ WINTER INDEX
GOLDENEYES	YES	45,679.0	351	<1%
Barrow's Goldeneye	NA	9,998.7	179	1.8%
Common Goldeneye	NA	16,596.7	172	1%



# Winter Index – HADU & LTDU

SPECIES	2022-23 EST.	RANK	3-YR AVG (WINTER INDEX)	LONG-TERM AVG
Harlequin Duck	4,144	19 <sup>th</sup> of 25	4,259.7	4,675.8
Long-tailed Duck	5,086	16 <sup>th</sup> of 25	4,885.3	5,468.2



# Harvest Strategy Comparison – HADU & LTDU

SPECIES	ABOVE CLOSURE THRESHOLD?	3-YR AVG (WINTER INDEX)	2022-23 HARVEST EST.	% HARVEST/ WINTER INDEX
Harlequin Duck	YES	4,259.7	CLOSED	NA
Long-tailed Duck	YES	4,885.3	139	2.8%



# Winter Index – Mergansers

SPECIES	2022-23 EST.	RANK	3-YR AVG (WINTER INDEX)	LONG-TERM AVG
Common Merganser	5,611	8 <sup>th</sup> of 25	5,160.3	4,523.0
Hooded Merganser	1,527	15 <sup>th</sup> of 25	2,167.3	1,684.1
Red-breasted Merganser	26,379	1 <sup>st</sup> of 25	22,950.7	12,632.8



Photo: Dorian Anderson/Audubon Photography Awards



# Questions?





# ADVANCING MONITORING

