

## Concern about increasing numbers of bigger birds

- Increasing numbers of bigger birds (geese, swans, and occasionally White-tailed sea eagles)
- Measures are undertaken to scare away birds and to reduce the breeding populations inside and close to the airports
- We monitor the approach and departure routes
- Bigger birds will still remain a threat to the air traffic



Two Whooper swans crossing in front of a Norwegian. Photo:

## Bird strikes in Norway w/ geese and swans last 6 years

Table bird strikes with geese and swans 2010-2015					
Year	# bs geese	# bs swans	Airport - birds	Airport - birds	Airport - birds
2015	0	0			
2014	1	1	Ålesund - Greylag goose (3,3 kg)	Værnes - Whooper swan (9,5 kg)	
2013	1	0	Bardufoss - 2 Greylag geese (à 3,3 kg)		
2012	0	0			
2011	3	0	Namsos - 2 geese (à 2,5-3,3 kg)	Ålesund - 2 Greylag geese (à 3,3 kg)	Førde - goose (2,5-3,6 kg)
2010	1	0	Bergen - goose (2,5-3,6 kg)		

Weight geese:
Pink-footed goose: 2,5 kg
Greylag goose: 3,3 kg
Canada goose: 3,6 kg

Whooper swan (9,5 kg), Værnes 2. January 2014



# US Airways 1549, 15. January 2009



## Royal Air Maroc, Amsterdam 6. June 2010

- Several Canada geese
- 16 ft over the runway
- Left engine reduced effect to 45%



MEXICO 2014

# GEESE AND FLIGHT SAFETY IN DENMARK

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Photo: Torben Andersen

 AVINOR





## Thomas Kjær Christensen and others (2014):

- Goose populations are increasing in Europe
- We better meet this development in the region before the populations increase dramatically (WBA Europe can possibly be an arena for this)
- Local birds are less likely to be involved in bird strikes than migratory birds
- Measures against migratory birds:
  - Disturb and chase the birds on and near the airports
  - Facilitate feeding – and resting areas away from the airports

## Avinor's measures against bigger birds – monitoring

- Monitoring: bird controllers and ATC cooperate in monitoring flight sectors and bird migration
  - A radar is in use in Værnes tower
  - Infrared camera can be another possible measure
  - Bird detection are recorded in the Remote tower project



Feeding Pink-footed geese at Andøya April 2007. Photo: C.K. Aas.



## Avinor's measures against bigger birds – scaring or removing birds

- Scaring birds
  - Scaring cartridges, distress calls, gas canons, laser etc
- Shooting: international controversy, shot birds can be replaced by new birds.
  - Shooting local birds may be effective in this season
  - Shooting migratory birds will only be effective against the birds present during the shooting
- Use of dogs: Our Risk Analyses (Paton, 2010) sometimes recommend the use of dogs when there is no air traffic

## Measures outside the control of Avinor

- Facilitating areas for birds away from the airports
  - The purpose is to move birds away from airports/flight sectors
- Hunting
  - Can hunting be regulated in other ways?
- Population control (ref. the concern in Europe)