

# An analysis of the uses, impacts and benefits of fish aggregation devices (FADs) in the global tuna industry



**MRAG**

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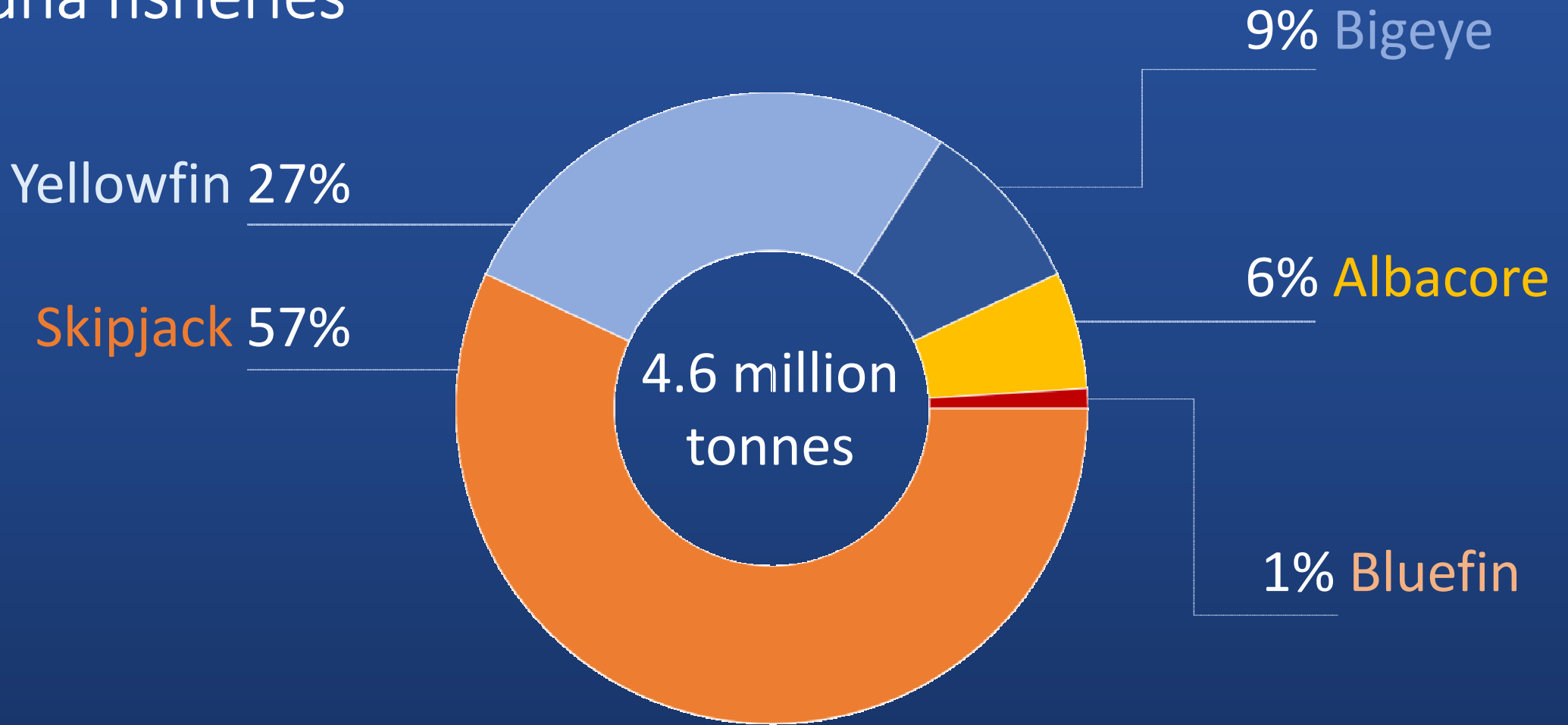
# Outline

- Purpose of the study
- Tuna fisheries and FADs
- Positives and negatives of FADs
- Management of FADs
- Recommendations: policy, management and science

# Purpose of the study

- FADs are a topic of considerable interest in tuna fisheries
- Aim: to provide a synthesis of up-to-date research and viewpoints
- What are the potential impacts and benefits of FADs?
- How are FADs managed and is this management effective?
- What are the major scientific uncertainties?
- What action needs to be taken going forwards?

# Tuna fisheries

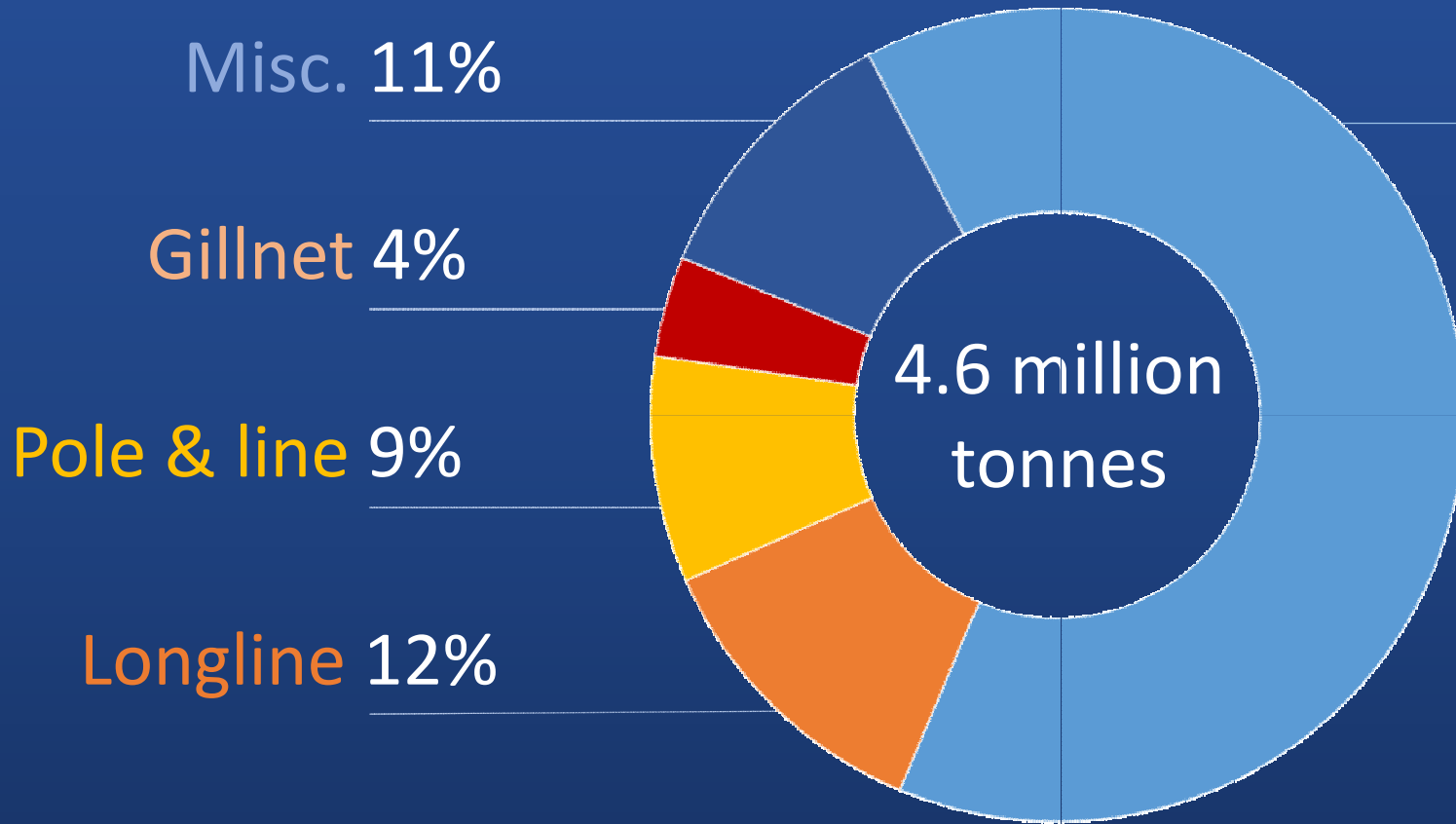


Total catch by species avg. 2010-2014

Source: ISSF 2016

# Tuna fisheries

64% Purse seine



ISSF

Total catch by gear avg. 2010-2014

Source: ISSF 2016

# Fish aggregating devices

- FADs are used widely in tuna fisheries
- Aggregate sparsely distributed schools of tuna
- Natural objects vs purpose-built FADs
- Anchored vs drifting designs



Paul Hilton / Greenpeace

# Fish aggregating devices



Joelle Albert

## Drifting FADs

- Exclusively purse seine fisheries
- ~ 80,000-120,000 worldwide
- Low cost, but high tech



Greenpeace

## Anchored FADs

- Artisanal, recreation and industrial
- ~ 13,000, but mainly artisanal use
- Robust design, but low tech

# Positive and negative impacts of FADs

- FADs have a number of *potential* impacts

## Positives

- Increased profitability of fleets
- Contribution to food security
- Reduced carbon emissions
- Targeting of a more resilient species

## Negatives

- Overfishing of tuna stocks
- Bycatch of vulnerable species
- Damage to marine habitats
- Interference with other activities

← Modification of tuna habitat →

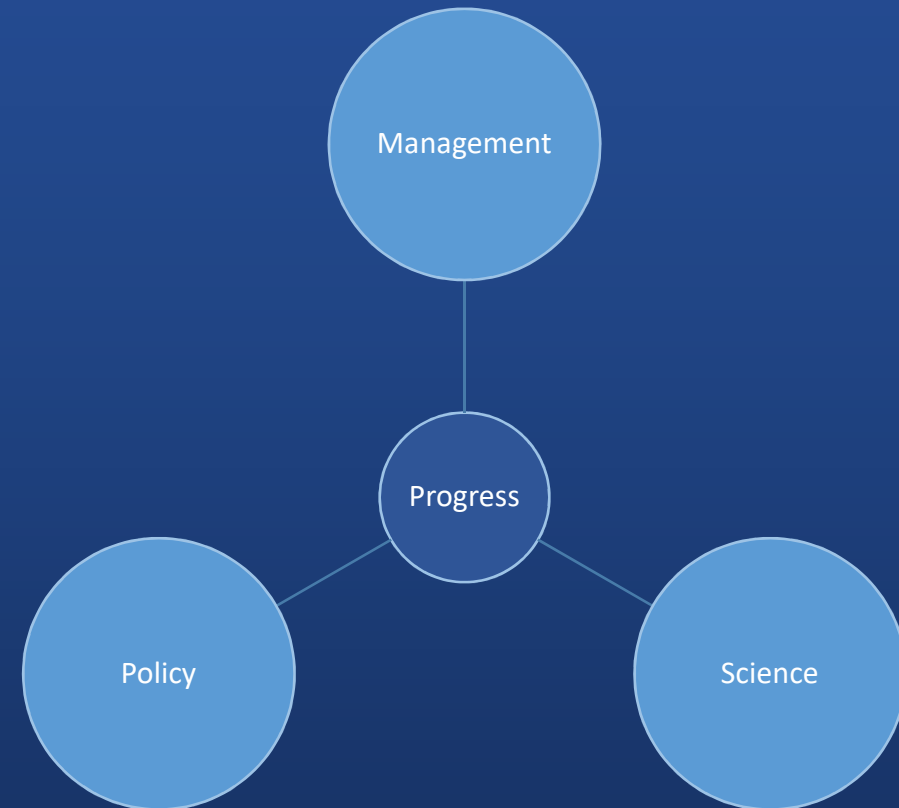


# Management of FADs

- Tuna RFMOs are tasked with managing the impacts of FADs
- A focus on reducing the mortality of juvenile tuna and bycatch
  - Time-area closures
  - Limits on FAD use
  - Mitigation measures
- An urgent concern... uncertainty in FAD use and impacts
  - FAD management plans
  - Ad hoc FAD working groups

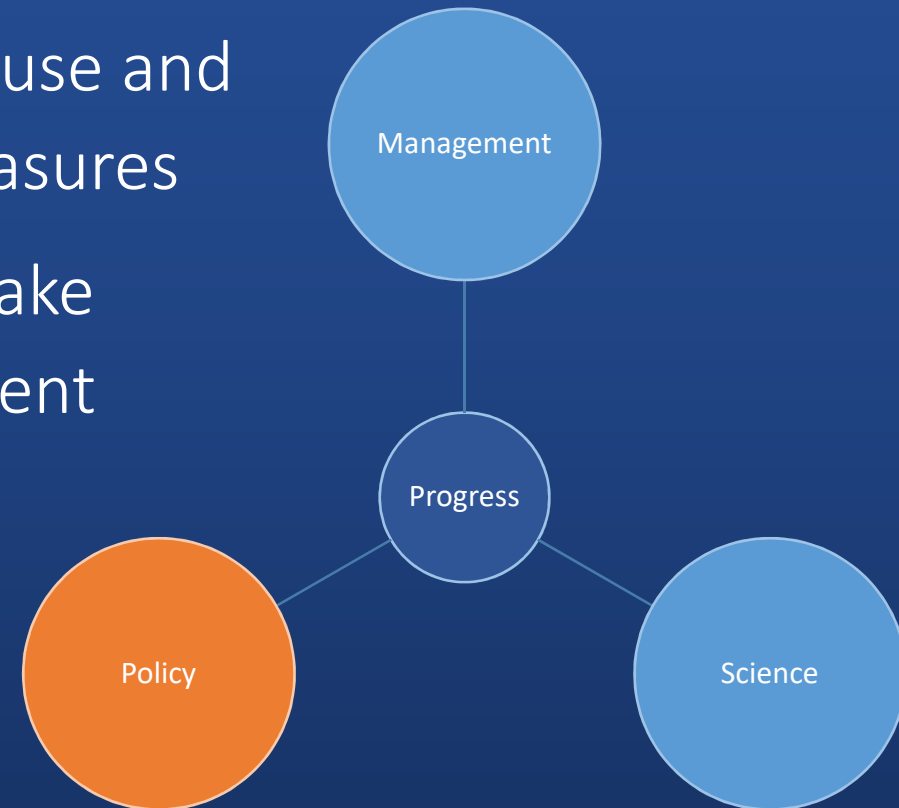
# Recommendations

- What is needed for strengthening management of FADs and improving our understanding of their impacts?



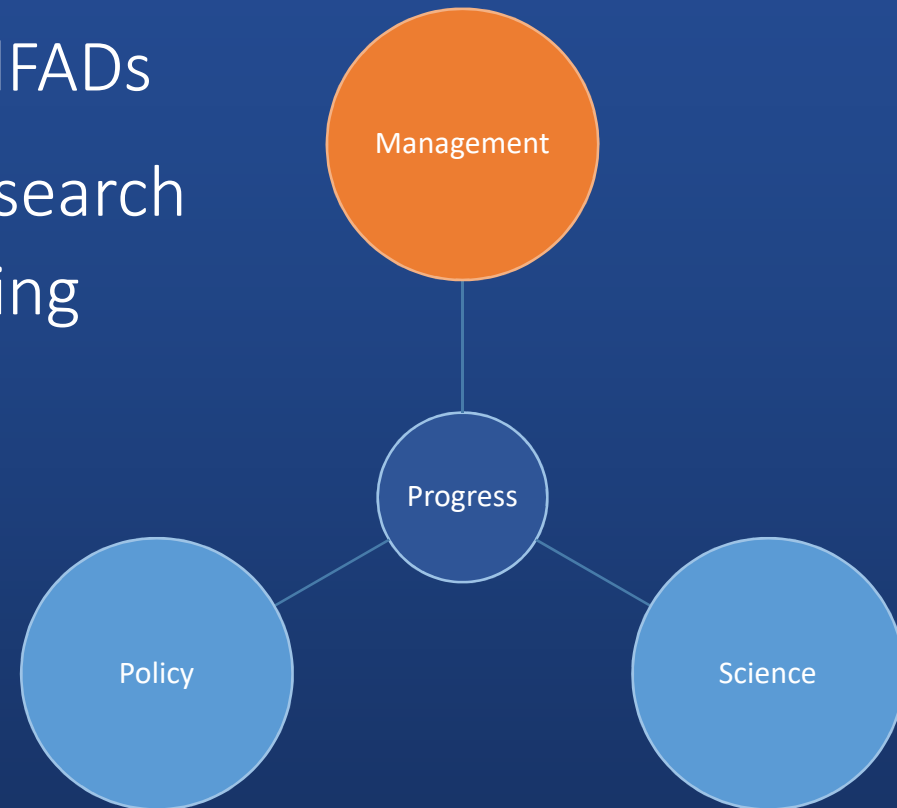
# Recommendations: policy

- Encourage tuna RFMOs to develop SMART indicators that are used to monitor dFAD use and evaluate the efficacy of management measures
- Encourage and support RFMOs to undertake comprehensive reviews of FAD management plans against current standards



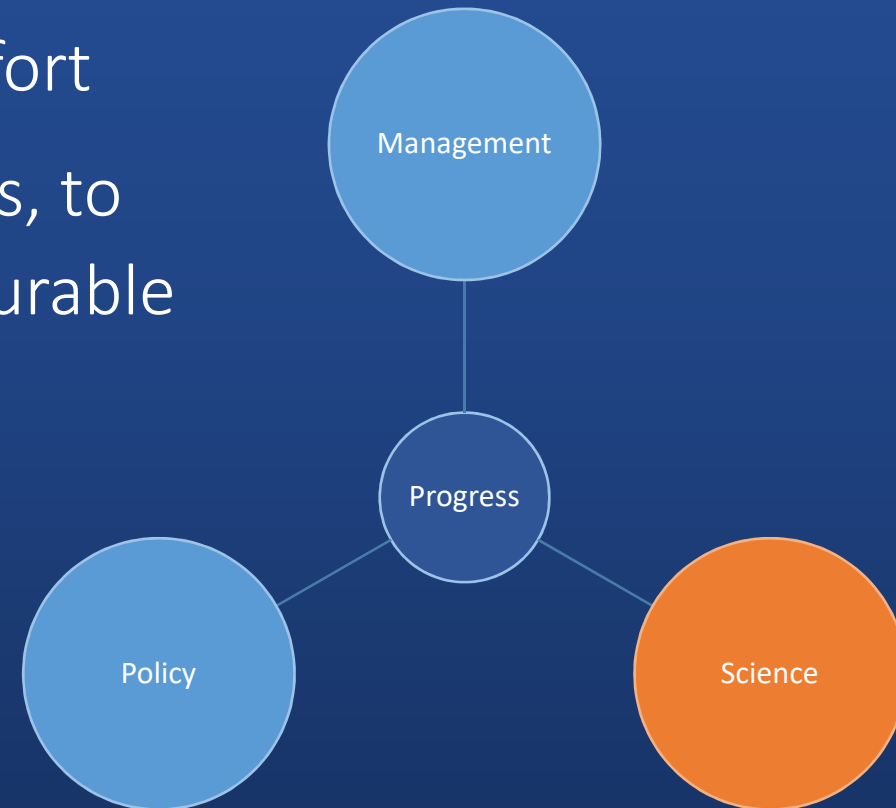
# Recommendations: management

- Develop an innovation programme for the development and trial of biodegradable dFADs
- Encourage or actively support ongoing research into the role of dFADs in determining fishing capacity and fishing effort



# Recommendations: science

- Ensure that detailed data are available throughout the RFMOs for monitoring effort
- Push for scientific basis for FAD limitations, to ensure they are realistic useful and measurable



## In summary

- FAD use is widespread and not going away
- FADs are associated with negative impacts, but...
- We need more data to understand long term ecosystem effects
- Management to date has been *ad hoc* and largely ineffective
- Understanding how FADs contribute to fishing effort is a priority