E-MONITORING AND E-REPORTING WORKSHOP

Pacific Islands Forum Fisheries Agency Headquarters, 31 March – 1 April 2014
Honiara, SOLOMON ISLANDS

E-monitoring implementation in Australia's Eastern Tuna and Billfish Fishery

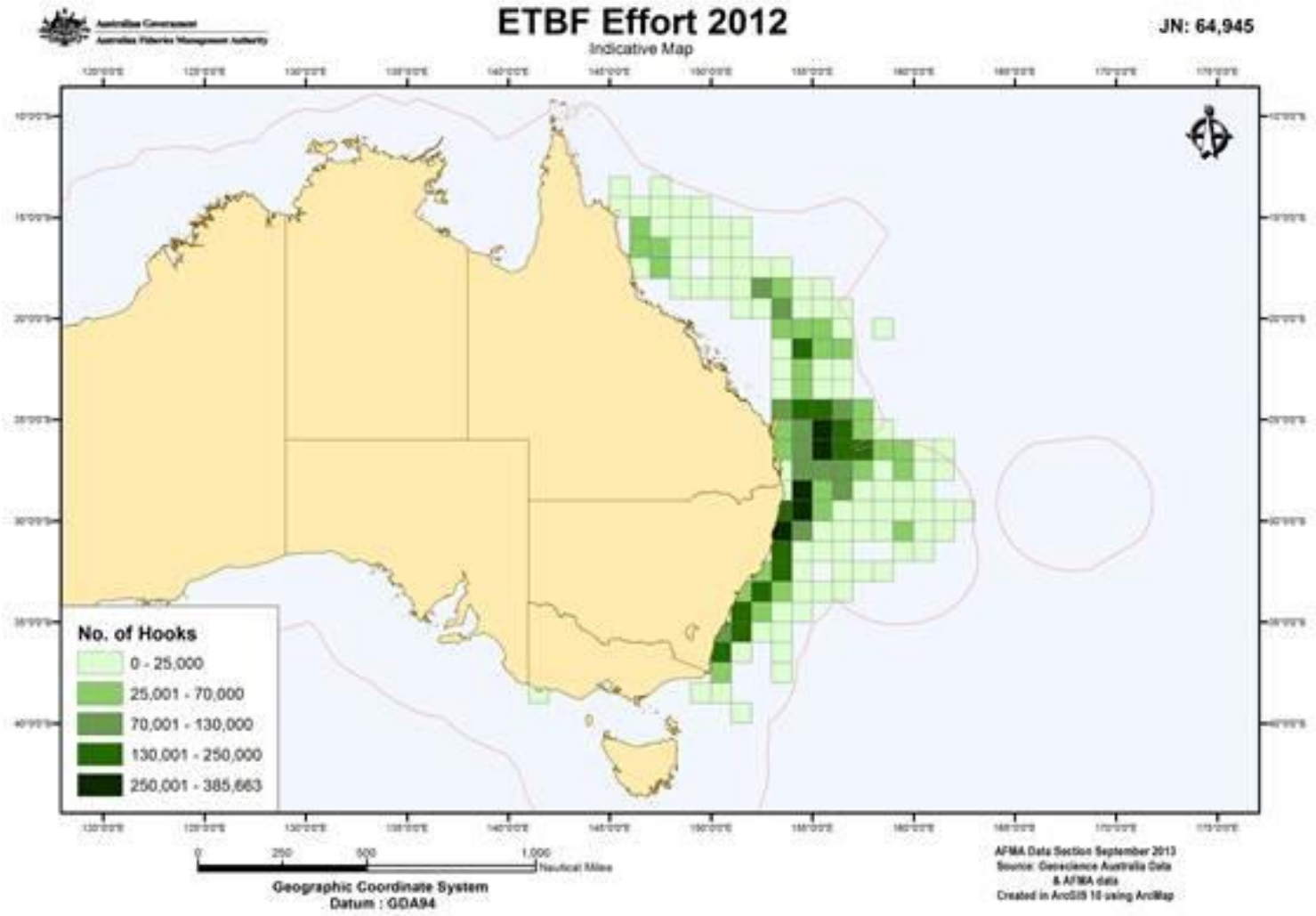
1 April 2014

Trent Timmiss

Australian Government
Australian Fisheries Management Authority

E-monitoring implementation in Australia's Eastern Tuna and Billfish Fishery

- Trent Timmiss, AFMA


ETBF Effort 2012
Indicative Map
JN: 64,945
No. of Hooks
0 - 25,000
25,001 - 70,000
70,001 - 130,000
130,001 - 250,000
250,001 - 385,663
0
250
500
1,000
Nautical Miles
Geographic Coordinate System
Datum : GDA94
AFMA Data Section September 2013
Source: Geoscience Australia Data
& AFMA data
Created in ArcGIS 10 using ArcMap

Outline of presentation

- Drivers for considering e-monitoring
- Process
- Trials
- Benefits
- Costs / what it can’t do
- Decision

Driver's for considering e-monitoring

1. **Cost of human observers**
   - Cost is A$767,000
   - Total cost recovered from industry A$1.6million
   - Observer costs account for ~ 48% of total costs for industry
2. **Workplace Health and Safety concerns**
3. **Compliance**
4. **Data quality**
5. **Observer effect**

Process - proof of concept

- **System placed on one boat for short period**
- **Confirmed that fishing operations could be**
  - Detected using sensors
  - Monitored by camera’s
  - Analysed after the event

Process – data needs analysis

- **Complete review of data collection and needs**
- **Bottom up analysis of:**
  - What data is collected?
  - Why is it necessary?
  - Can it be collected by e-monitoring?
  - If, no can it be collected another way?
- **Top down analysis**
  - Decisions that need to be made
  - Information requirements for those decisions

Process – data needs analysis (cont)

- **Analyses conducted by small working group**
  - Key scientists
  - Manager
- **Presented to resource assessment group for review**
  - Scientists
  - Manager
  - Industry members
  - Recreational representatives

Commercial trial

- **Trial on 10 Eastern Tuna and Billfish boats for 10 months**
  - Variety of designs (forward and aft wheelhouses)
  - Variety of hulls (steel, fibreglass)
  - Locations (7 Queensland, 3 NSW)
  - Seasons
  - Fishing styles (shallow set swordfish, tuna and Southern Bluefin Tuna)
  - Night and day setting and hauling
- **Still retained human observer coverage for comparision**

Commercial trial – industry outreach

- **All boats participation was voluntary**
- **Meetings with all industry**
  - Formal letters inviting participation
- **Focussed workshops with participants prior to installs**
  - Signed Memorandum of Understanding
  - Video footage would be used for education, not compliance during trial
    - Except in exceptional circumstances (eg shooting wildlife)
- **Industry to undertake basic maintenance**

Commercial trial - results

- **62 shots compared between at sea observers and e-monitoring**
- **Over 70% match for identification at the species level**
  - Improvements in footage quality
  - Camera position
- **Improved logbook reporting**

Commercial trial - results

- **Cost-benefit analysis**
  - Generally positive
  - Dependent on maintenance services
- **Video analysers compared**
  - Trained at sea observers
  - Data entry staff
  - University students
- **Behaviour changes from industry**
  - Difficult to quantify, but real

Benefits

- **Reduced costs**
- **Improved data quality**
  - Combined with e-logs, near real time high quality data
- **Ability to monitor more fishing events**
  - Cost of increasing monitoring level relatively small
- **No ‘observer effect’**
  - Industry do not know when they are being monitored

Benefits (cont)

- **Reduced health and safety risks**
  - Less staff in dangerous workplaces
  - Lower insurance premiums?
- **Improved compliance and risk assessments**
  - Can be used as evidence for prosecution, or
  - Intelligence to better focus other compliance assets

Benefits (cont)

- **Potential to understand and regulate handling practices**
  - Sea turtle handling guidelines
  - Release of live sharks
- **Auditable**
  - Can be viewed by more than one person
  - Less susceptible to corruption

Costs - what e-monitoring can’t do

- **Collect otoliths / genetic samples**
- **Tag fish**
- **Weigh fish**
- **Take length samples (currently)**
- **Collect human intelligence**
- **See everything a human observer would**

Decision to go ahead?

- **Overall assessment is positive for e-monitoring**
- **Greater focus on making sure logbook data is right**
- **More reliance on using logbook information for management decisions**
- **Large penalties for industry mis-reporting logbooks**

What is required

- **Large up front investment ~ $A850,000**
- **Changes to IT systems**
  - Australia entering data into observer data base
- **Maintenance / field servicing in remote locations**
  - What happens when system is inopperable
- **Changes to laws and fishing conditions**

Stakeholder perceptions

- **Industry**
  - Supportive only if is delivers costs savings
  - Concerned about privacy and public image
- **Environmental groups**
  - Initially cautious
  - Have seen the benefits in other fisheries
- **Scientists**
  - Generally supportive
  - Concerned about change in data

Australian Government
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Any Questions?

Compliance

- **100% of fishing operations ‘monitored’**
- **Automated checking of:**
  - Number of fishing operations
  - Fishing start and end times
  - Fishing start and end locations
  - Fishing in closed areas
- **Verification of:**
  - Tori lines
  - Line weights?
  - Discarding of quota species
  - Piece counts by species of quota species
- **Replaces at sea patrols and flights**

Data Quality

- **Currently 5-7% observer coverage**
- **Most fisheries management decisions still based on logbook data**
- **Logbooks known to under report seabird and turtle interactions**
  - Possibly shark interactions as well
- **Trials show improved logbook reporting across the board**
- **With e-logs, data can be near real time**

Observer effect

- There is evidence that change their behaviour when an observer is present
- How representative is observer data of the majority of fishing?