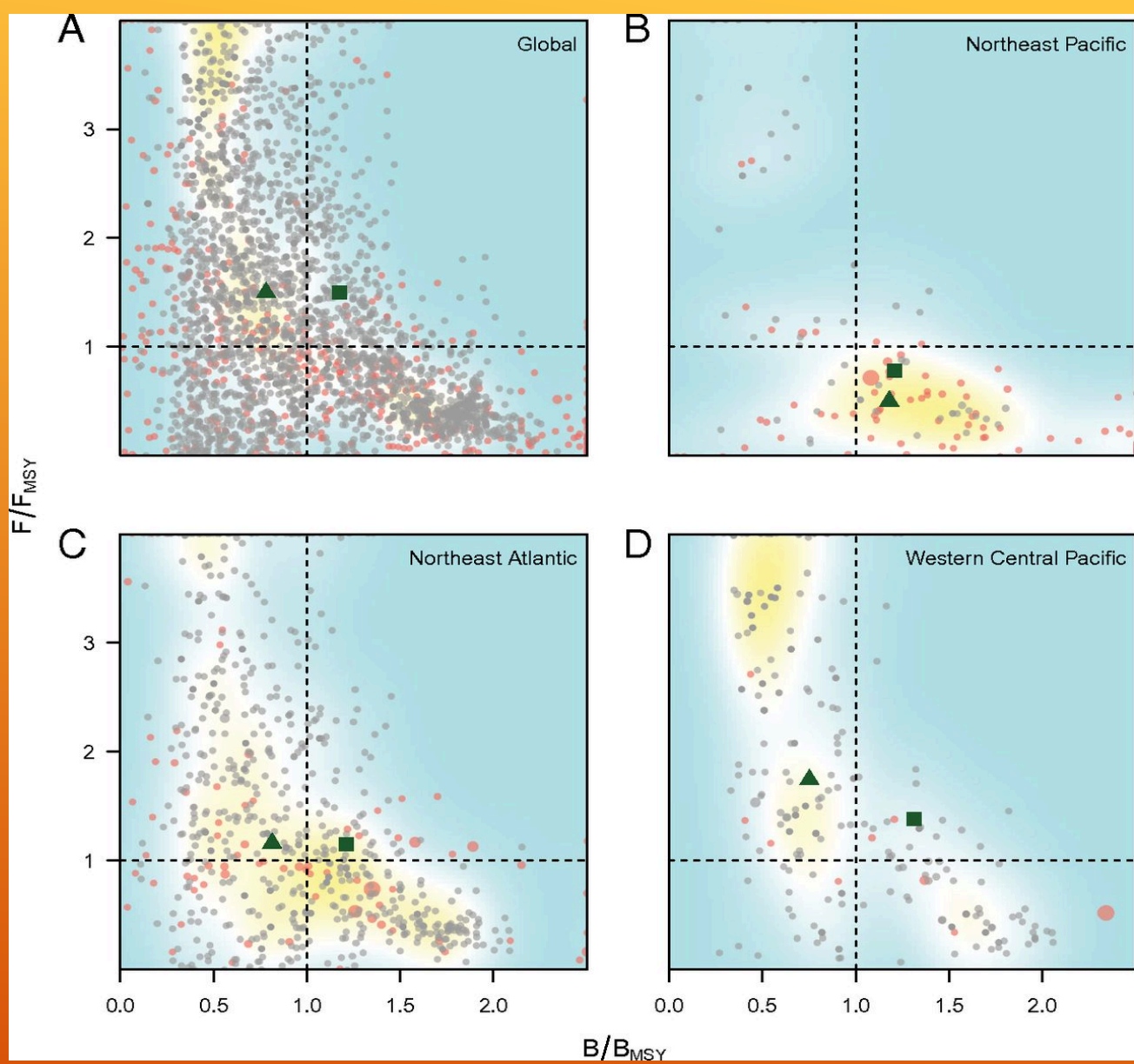


SOUND FISHERIES MANAGEMENT CAN LEAD TO SIGNIFICANT INCREASES IN GLOBAL SEAFOOD PRODUCTION

But how do we get there?

Merrick Burden
Senior Economist
Oceans Program
Environmental Defense Fund

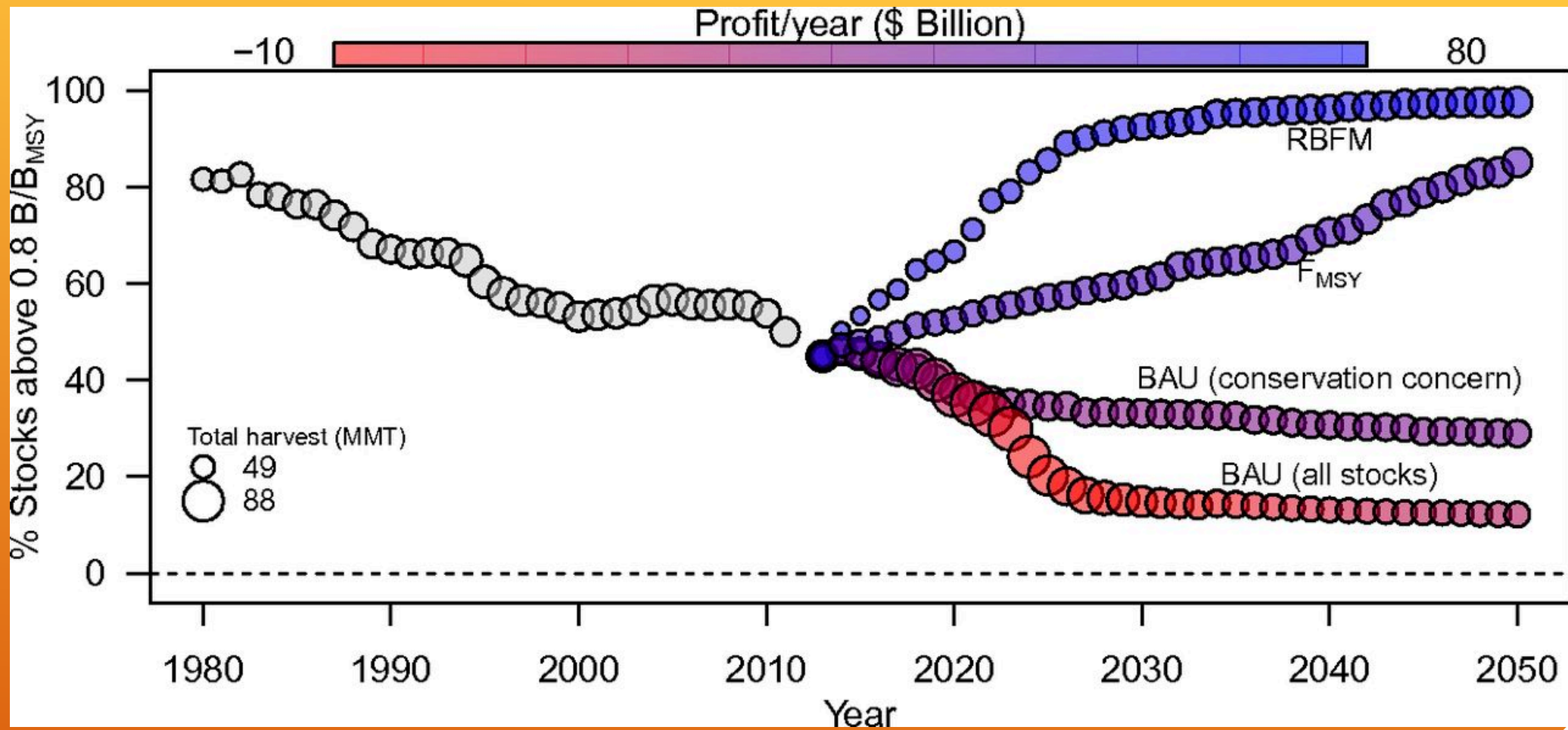


MUCH IMPROVEMENT
 COULD BE MADE TO THE
 STATUS AND FISHING RATE
 OF STOCKS AROUND THE
 WORLD

On a global scale, stocks on average are experiencing overfishing. Some regions are performing better than others.

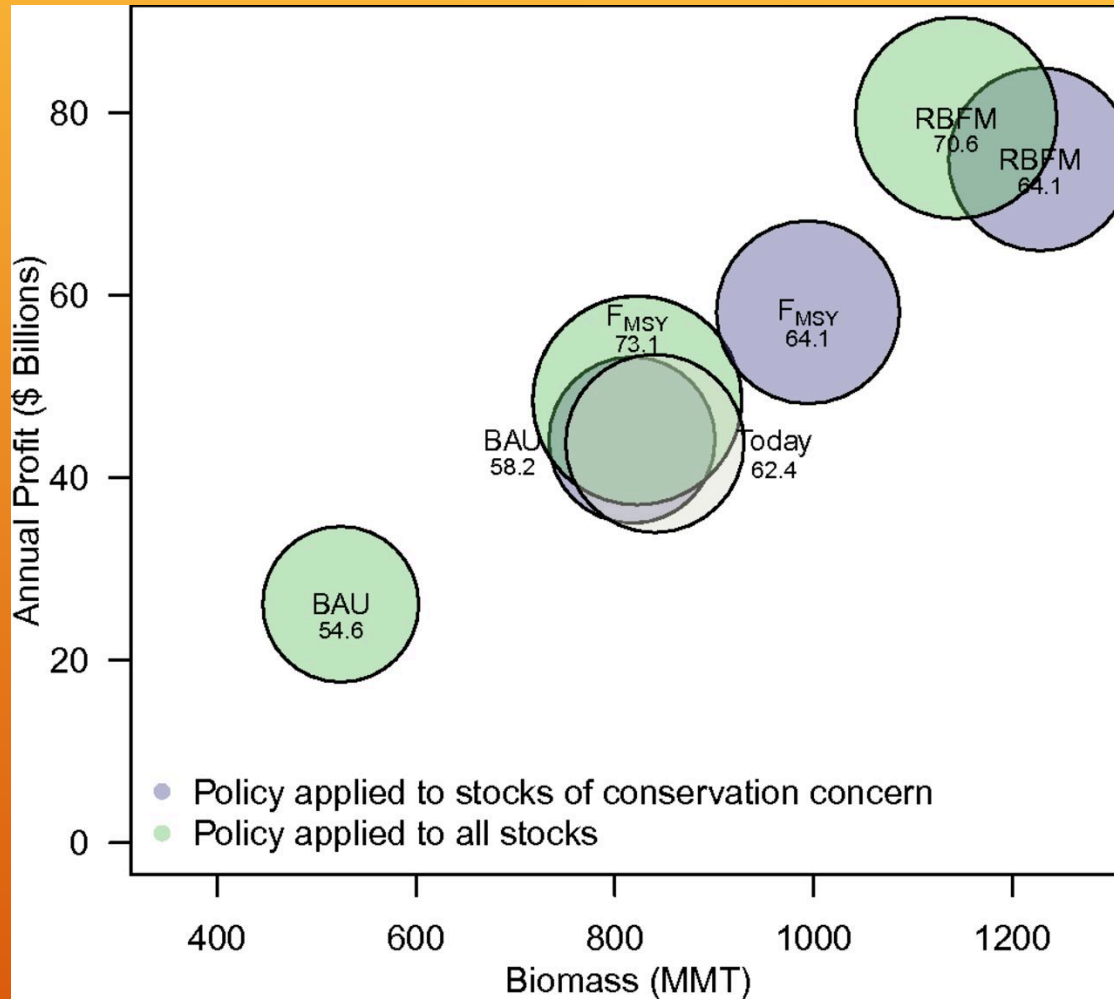
Note: square reflects mean, triangle reflects median

Source: Costello et al. 2016. Global fishery prospects under contrasting management regimes. PNAS 2016 113: 5125-5129



Different harvest policies can lead to a significant improvement in the status of stocks around the world

(all global stocks combined for which we have data or estimates)



DIFFERENT HARVEST POLICES CAN DRAMATICALLY CHANGE PROFITS OF THE WORLD'S FISHERIES

Source: Costello et al. 2016. Global fishery prospects under contrasting management regimes. PNAS 2016 113: 5125-5129

THE QUESTION IS "HOW DO WE GET THERE"?

In many places, catch will need to decline further before things get better



Historic and potential future catch for several stocks in Gulf of California - Mexico



HISTORIC AND PREDICTED CATCH FOR A GROUP OF STOCKS IN THE GULF OF CALIFORNIA - MEXICO

Derived from: Sea Around Us project, 2016; an analysis of 28 GOC stocks done by Dr. Miguel Cisneros; and model published in Costello et al 2016

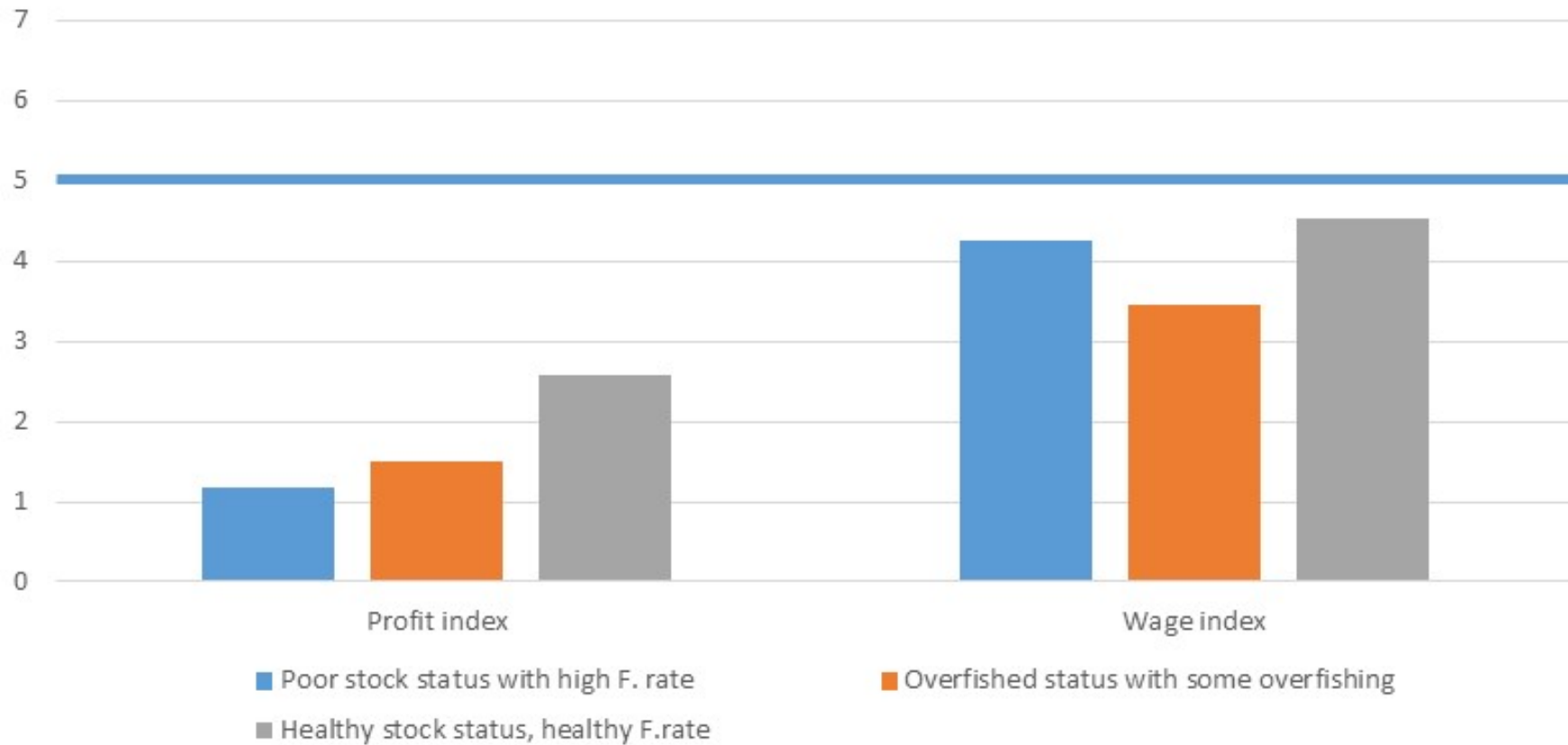
THE SHORT TERM CONSEQUENCES ARE
VERY REAL TO STAKEHOLDERS.

LONG TERM BENEFITS ARE MORE DIFFICULT
TO SEE.

(I.E. "MODELS ARE GREAT, BUT PROVE IT")



Economic indices and sustainability



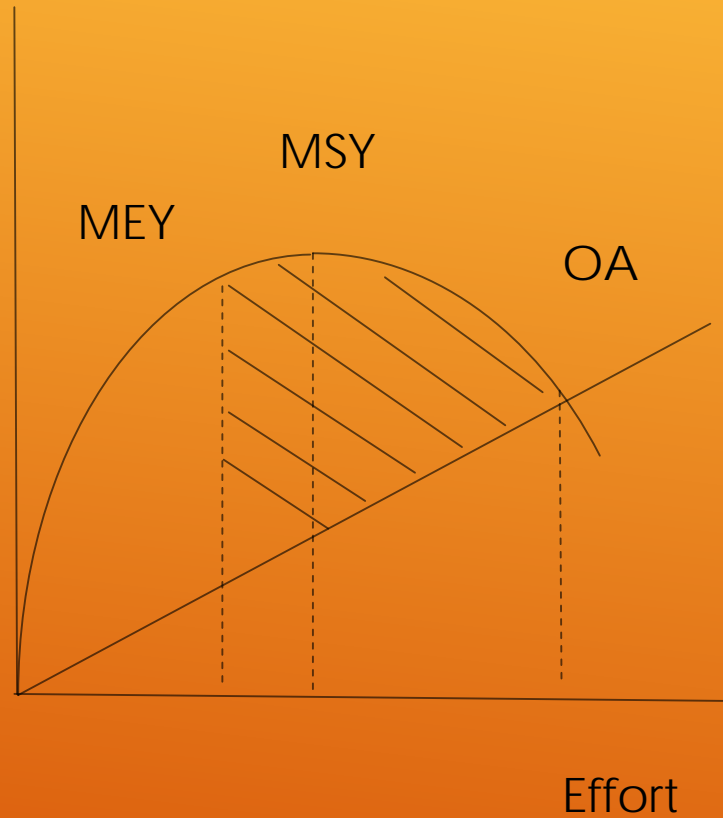
AROUND THE
WORLD,
FISHERIES
ADHERING TO
SOUND
MANAGEMENT
BENCHMARKS
TEND TO
PERFORM
BETTER ON AN
ECONOMIC
BASIS

source: derived from Fishery Performance Indicators project

IS FISHERY SOCIAL AND ECONOMIC
PERFORMANCE A TRADEOFF AMONG
ATTRIBUTES, OR CAN THERE BE
SIMULTANEOUS IMPROVEMENT IN
MULTIPLE ATTRIBUTES?

...AND CAN WE DO SO WITHOUT
INCREASING CATCH?

Revenue
and cost



BASIC ILLUSTRATION
USING GORDON-
SCHAEFER MODEL:

IF WE CAN CALCULATE THE
SHADED AREA, WE CAN
ALSO CALCULATE
TRADEOFFS BETWEEN PROFIT
AND EFFORT

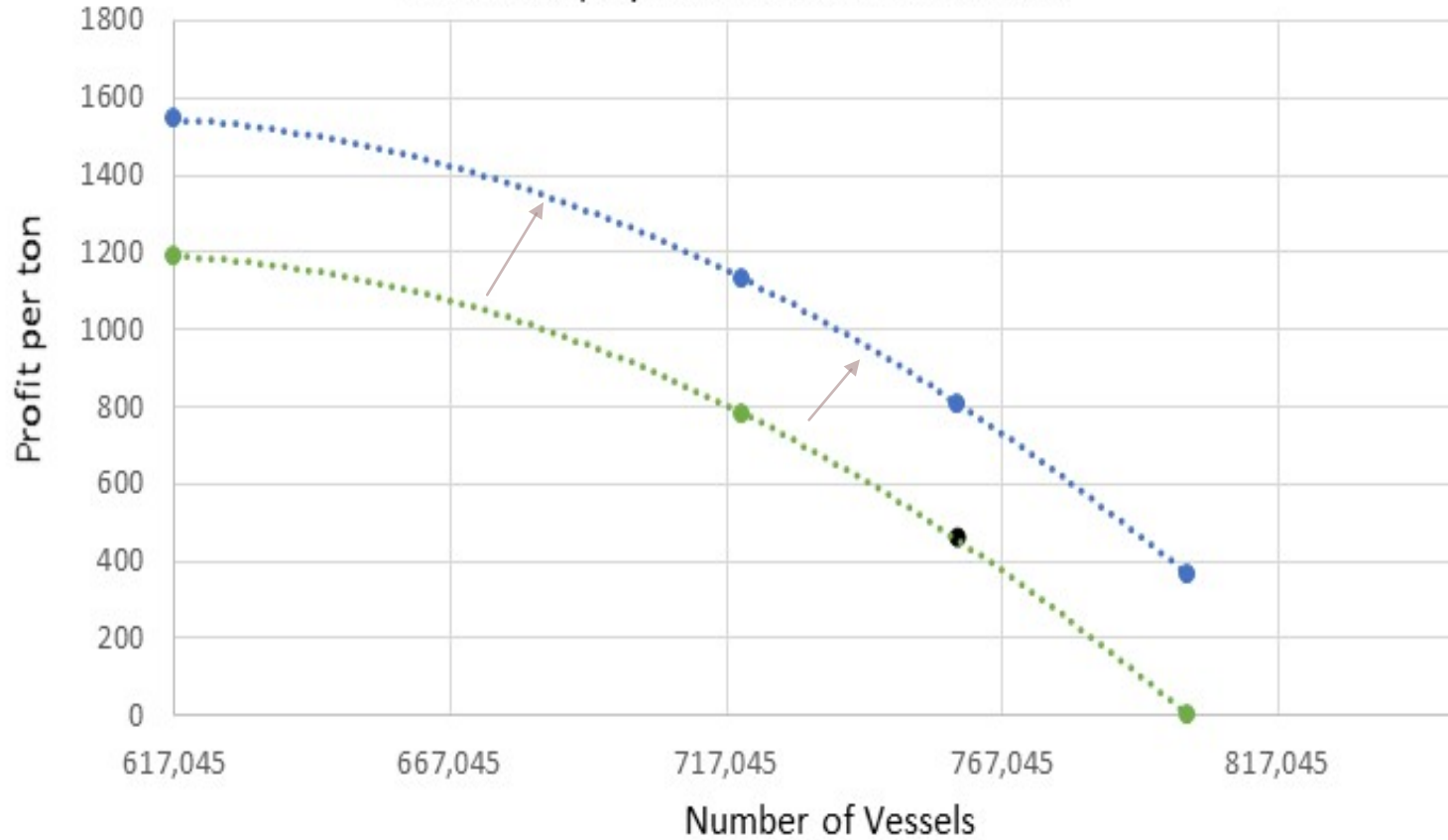


TRADEOFF BETWEEN PROFIT AND EMPLOYMENT IN INDONESIA

Is it purely a question of tradeoffs, or can fisheries produce both more jobs and more profit with existing catch levels?

Source: derived from model published in Costello et al 2016 and Indonesia government fisheries statistics

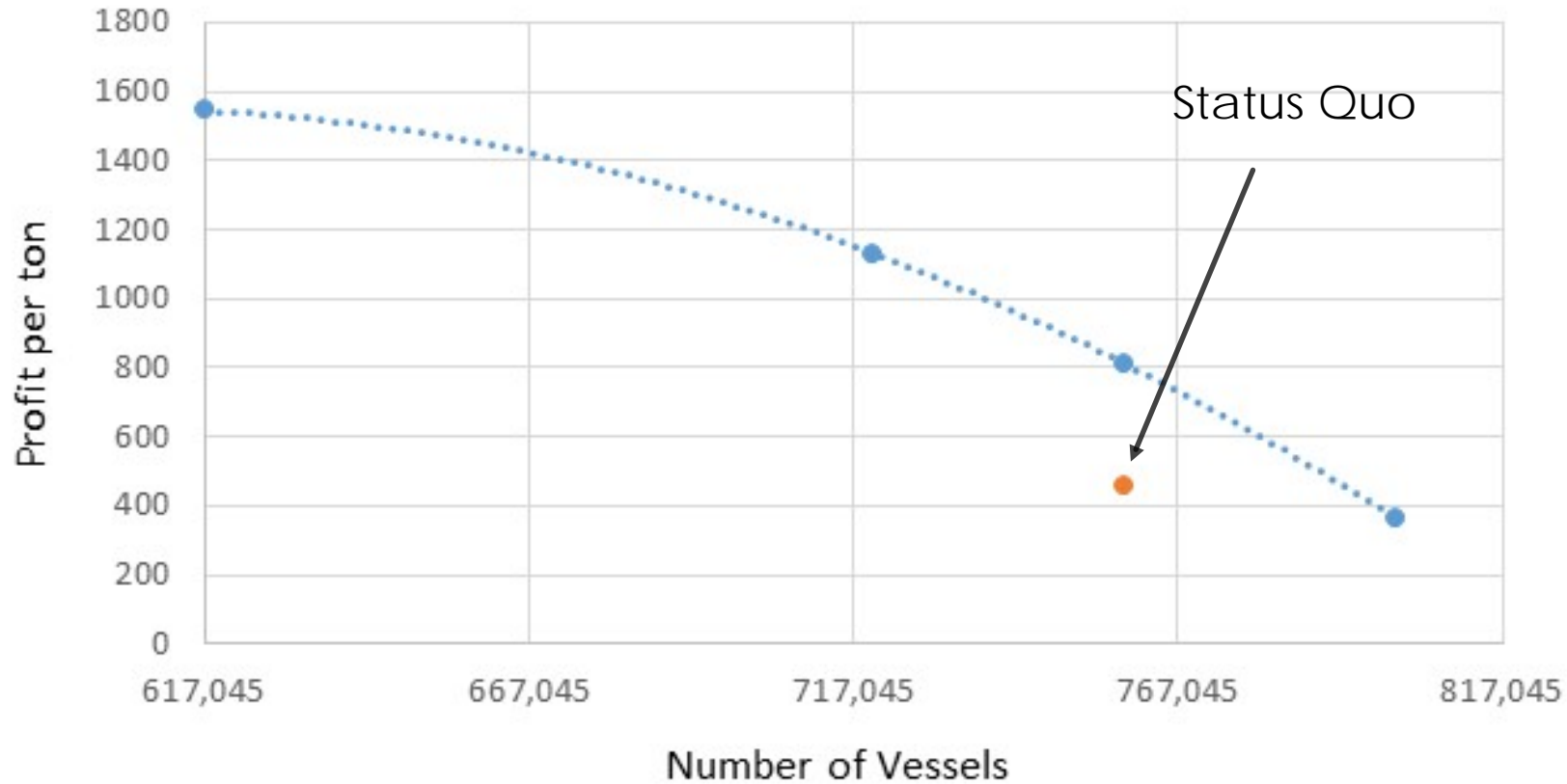
Profit vs Employment Tradeoff in Indonesia



INFORMATION SUGGESTS PRICES HAVE THE POTENTIAL TO IMPROVE (QUALITY IMPROVEMENTS, REDUCTION IN SPOILAGE, MARKET TIMING)

Higher prices can be translated into greater profits or greater employment in the fishery or both

Production Possibility Frontier for Indonesia



The notion that prices can be higher means the potential of the fishery is higher than is currently being realized

ROOM FOR SIGNIFICANT IMPROVEMENT IRRESPECTIVE OF CHANGES TO CATCH

WHAT ARE THE IMPLICATIONS?

It is often difficult to stem the tide of overfishing. Stakeholders and policy makers equate catch reductions with economic harm. Plus, the long term benefits are perceived as uncertain

Information suggests that fisheries could be performing better than they are on several economic and social attributes without higher catch levels.

Coupling fishery reform with efforts aimed at improving social and economic performance can do much to mitigate the effect of catch reductions necessary for stock rebuilding and assist stakeholders through the transition period