

# What to watch out for with Status Determination Criteria (SDC)

The Council sets the status determination criteria for stocks. It's important to understand the effects of any changes made because they could have serious consequences.

We don't usually know MSY, so we use a proxy

## Maximum Sustainable Yield (MSY)

*The maximum yield that can be taken on an annual basis based on the biology of the stock.*

In the MSA, fisheries are managed to Optimum Yield (OY), which is MSY reduced by social, economic and ecological considerations. ACLs are the annual expression of OY.

## ANALOGY

### It's like a bank account

The **MFMT** is similar to setting a spending budget

→ Raising **MFMT** is like setting your spending budget high; it's easier to overspend

The **MSST** is similar to how much you keep in an emergency fund

→ Lowering **MSST** is like deciding to keep a smaller emergency fund

## Spawning Potential Ratio (SPR)

*A measure of how productive a stock is compared to its unfished state.*

**Range:** Typically set between 30-50% of unfished levels. The Council sets the SPR.

**Significance:** Lowering SPR is risky. While it can increase catch in the short term, it inherently manages the stock at lower population levels. In the long-term, that may mean greater reductions in catch and lower recruitment if the stock becomes overfished.

## Minimum Stock Size Threshold (MSST)

**Think emergency fund**

*The biomass below which the stock is overfished.*

**Range:** Scientists recommend setting at 0.75 or 75% of the biomass at MSY. The Council sets MSST.

**Significance:** If MSST is set too low, a stock is at a greater risk of serious decline and actions to rebuild must be more severe.

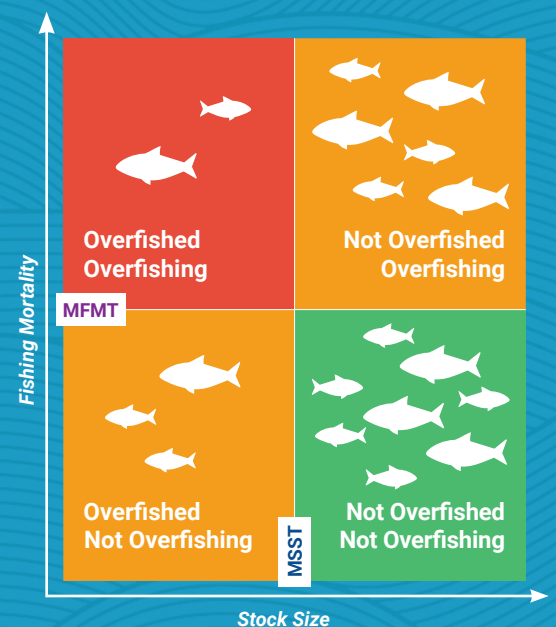
## Maximum Fishing Mortality Threshold (MFMT)

**Think spending budget**

*The fraction of the stock that can be sustainably removed, above which overfishing is occurring.*

**Range:** Based on a fishing mortality rate as a function of MSY or SPR. The Council sets SPR, which changes MFMT.

**Significance:** If MFMT is set too high, the risk of undetected overfishing is higher.

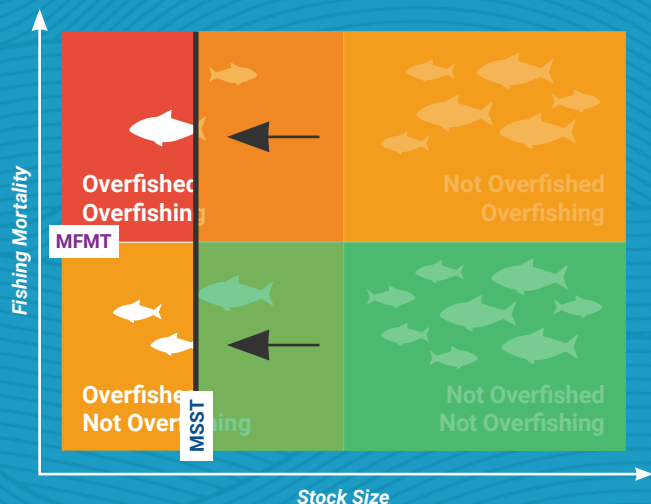




Setting SDC at risky values means there is less room for uncertainty or unexpected events in management because the stock would be in worse shape before management action is triggered.

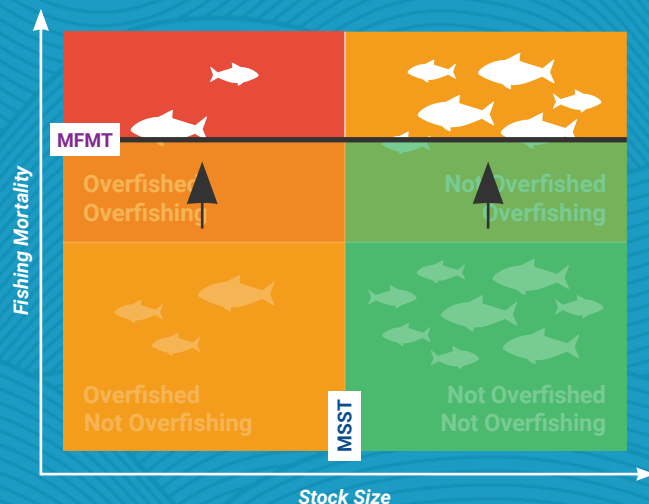
## LOWERING MSST

With a low MSST it appears that the stock is in a safe zone even when it's at a low size, making it harder to rebuild.



## LOWERING SPR (which raises MFMT)

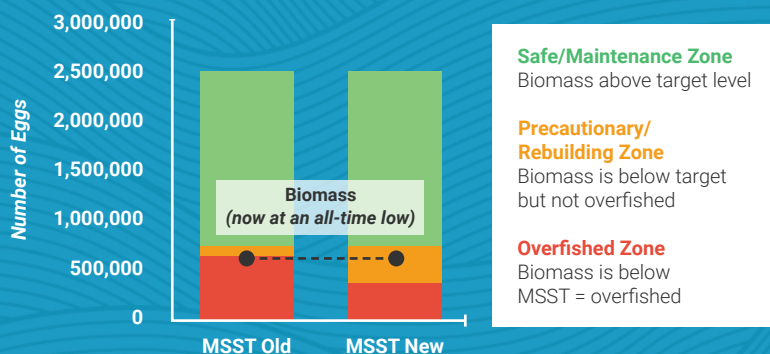
When SPR is lowered, the maximum fishing rate increases and more fishing can occur before overfishing is declared, raising the risk that a stock becomes overfished.



Management at riskier SDC values can lead to less stable catch levels for the fleet and is comparable to having a high spending budget and low savings.

## CASE STUDY: MSST REDUCTION IN RED GROUPER

Amendment 44 modified the MSST for several stocks (including red grouper) to 0.5BMSY, the lowest and riskiest threshold allowable. With the old MSST, red grouper would currently be considered overfished—under the new level, it's not.



### SEDAR 61

	MSST Old	MSST New
SPR	30%	30%
MSST	0.856	0.5
Overfished	Yes	No
Risk	⚠️	⚠️⚠️⚠️

Waiting longer to declare a stock overfished when its at low levels is **riskier than if the stock were declared overfished earlier**. Because no rebuilding plan is in place, there is an increased chance of further decline and a bigger challenge to rebuild (increased restrictions) later.



### CAUTION

SEFSC scientist's simulations suggest that MSST should not be set below 0.75.