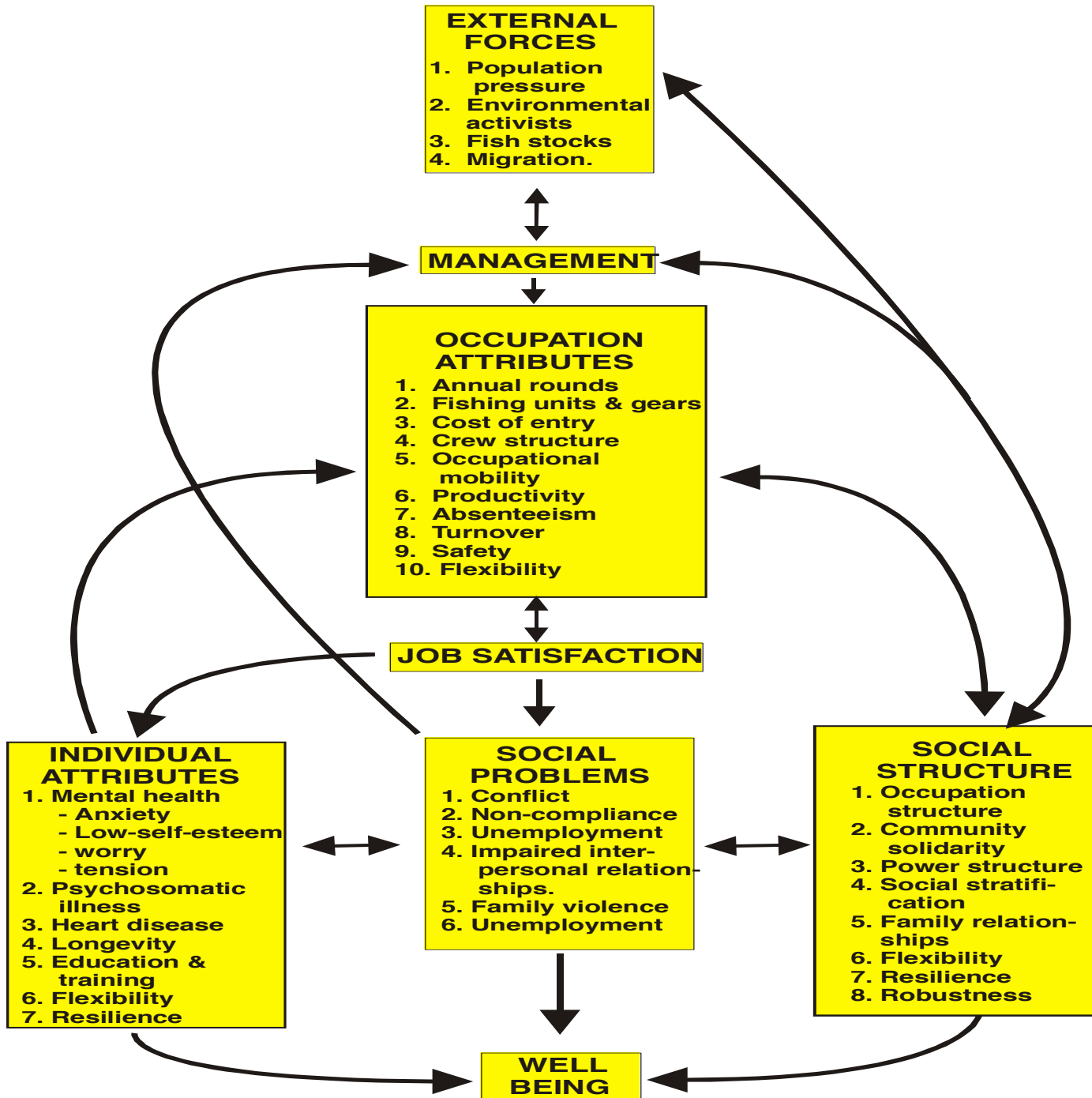
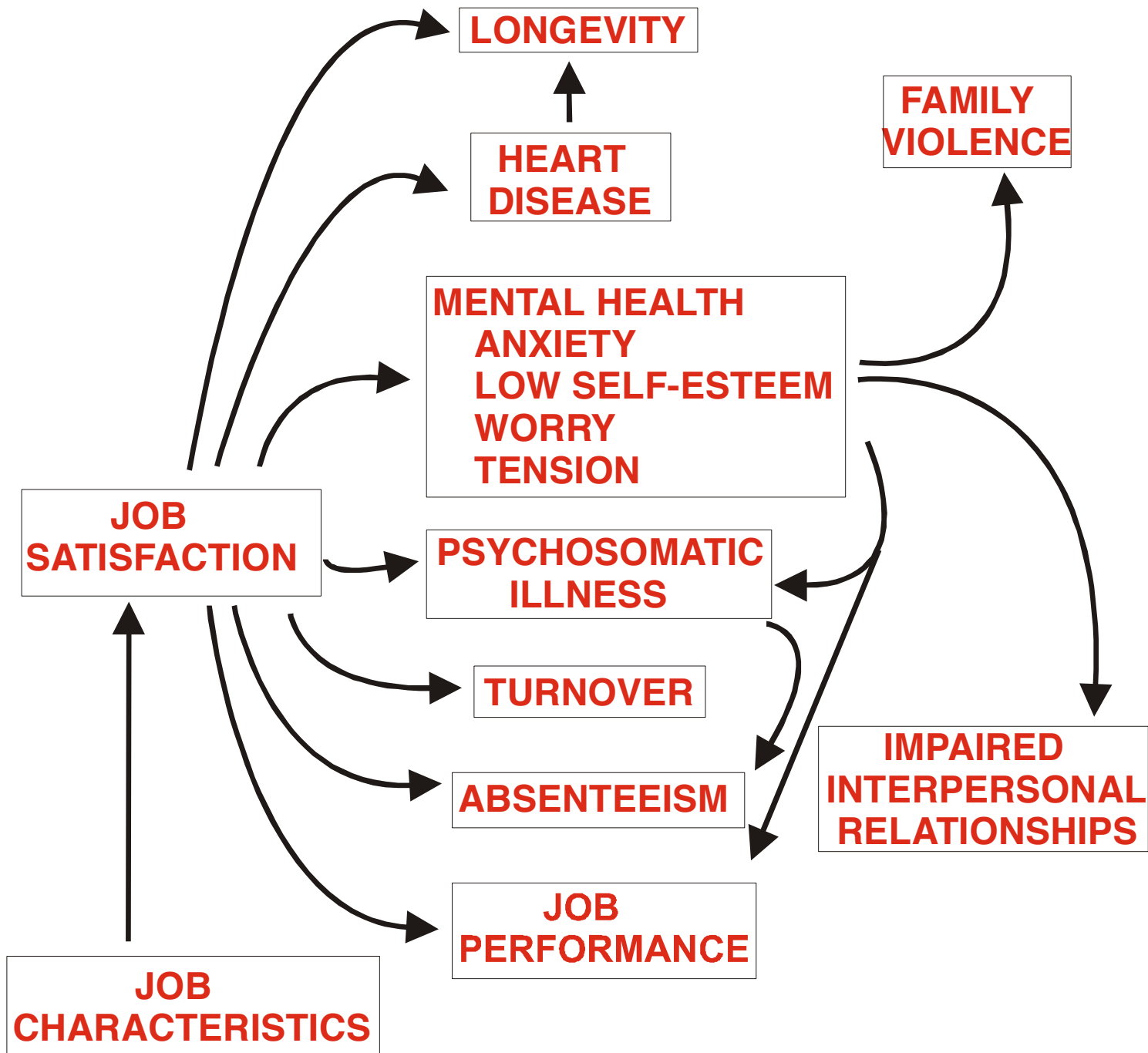


# Fishery management, job satisfaction & well-being

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# Selecting Indicators for Surveys

- **Sociologists, psychologists & other social scientists have been constructing scales for measuring variables of interest for decades.**
- **We should take advantage of these scales.**
- **But sometimes, when we want to measure numerous variables, the combination of scales results in a survey of unacceptable length.**
- **What do we do?**
- **Item analysis using multivariate techniques.**

# **Job Satisfaction Example**

- **Why job satisfaction? The job consumes 1/3 or more of your working day....**
- **The Sample---**
- **New England (Chatham & New Bedford, MA and Point Judith, RI) N=72**
- **SE Alaska (Petersburgh & Craig) N=77**
- **Dominican Republic (La Altagracia, Montecristi, Puerto Plata, Espaillat, María Trinidad Sanchez, & Samaná) N=130**

## Principal component analysis of job satisfaction items.

	<b>Social &amp; Psycho Needs</b>	<b>Self Actualize</b>	<b>Basic Needs</b>
<b>Time away from home</b>	<b>0.703</b>	<b>0.051</b>	<b>-0.020</b>
<b>Physical fatigue of the job</b>	<b>0.646</b>	<b>0.152</b>	<b>0.042</b>
<b>Hours spent working</b>	<b>0.644</b>	<b>0.152</b>	<b>0.346</b>
<b>Healthfulness of job</b>	<b>0.644</b>	<b>0.147</b>	<b>-0.084</b>
<b>Time for recreation &amp; family</b>	<b>0.569</b>	<b>-0.032</b>	<b>0.189</b>
<b>Mental pressure of job</b>	<b>0.496</b>	<b>-0.179</b>	<b>0.358</b>
<b>Time to the fishing grounds</b>	<b>0.496</b>	<b>0.110</b>	<b>0.253</b>
<b>Adventure of the job</b>	<b>0.097</b>	<b>0.816</b>	<b>-0.018</b>
<b>Challenge of the job</b>	<b>0.158</b>	<b>0.730</b>	<b>-0.061</b>
<b>Opportunity to be own boss</b>	<b>0.000</b>	<b>0.631</b>	<b>0.079</b>
<b>Being on the water</b>	<b>0.113</b>	<b>0.628</b>	<b>0.048</b>
<b>Doing something worthwhile</b>	<b>0.088</b>	<b>0.611</b>	<b>0.354</b>
<b>Your actual earnings</b>	<b>0.153</b>	<b>0.082</b>	<b>0.785</b>
<b>Predictability of earnings</b>	<b>0.254</b>	<b>-0.120</b>	<b>0.782</b>
<b>Job Safety</b>	<b>0.036</b>	<b>0.308</b>	<b>0.514</b>
<b>Cleanliness of job</b>	<b>0.373</b>	<b>0.100</b>	<b>0.156</b>
<b>Community in which you live</b>	<b>0.124</b>	<b>0.110</b>	<b>0.120</b>
<b>Percent of Total Variance</b>	<b>16.801</b>	<b>15.398</b>	<b>11.919</b>

## SOCIAL & PSYCHOLOGICAL NEEDS

<b>Time away from home</b>	<b>0.703</b>
<b>Physical fatigue of the job</b>	<b>0.646</b>
<b>Healthfulness of job</b>	<b>0.644</b>
<b>Hours spent working</b>	<b>0.644</b>
<b>Time for recreation &amp; family</b>	<b>0.569</b>
<b>Mental pressure of job</b>	<b>0.496</b>
<b><u>Time to the fishing grounds</u></b>	<b><u>0.496</u></b>

**r top & component score = 0.70  $r^2 = 0.49$**

**r top 2 = 0.84  $r^2 = 0.71$**

**r top 3 = 0.89  $r^2 = 0.79$**

## SELF ACTUALIZATION

<b>Adventure of the job</b>	<b>0.816</b>
<b>Challenge of the job</b>	<b>0.730</b>
<b>Opportunity to be own boss</b>	<b>0.631</b>
<b>Being on the water</b>	<b>0.628</b>
<b>Doing something worthwhile</b>	<b>0.611</b>

**r top & component score = 0.82  $r^2 = 0.67$**

**r top 2 = 0.84  $r^2 = 0.71$**

**r top 3 = 0.93  $r^2 = 0.86$**



## BASIC NEEDS

<b>Your actual earnings</b>	<b>0.785</b>
<b>Predictability of earnings</b>	<b>0.782</b>
<b>Job Safety</b>	<b>0.514</b>

**r top & component score = 0.79  $r^2 = 0.62$**

**r top 2 = 0.89  $r^2 = 0.79$**

**r all 3 = 0.93  $r^2 = 0.86$**

# REDUCTION EFFECT

- **USING 2 FROM EACH COMPONENT COULD REDUCE 17 INDICATORS TO 6**
- **WE USED 3, REDUCING 17 TO 9.**

# WELL-BEING

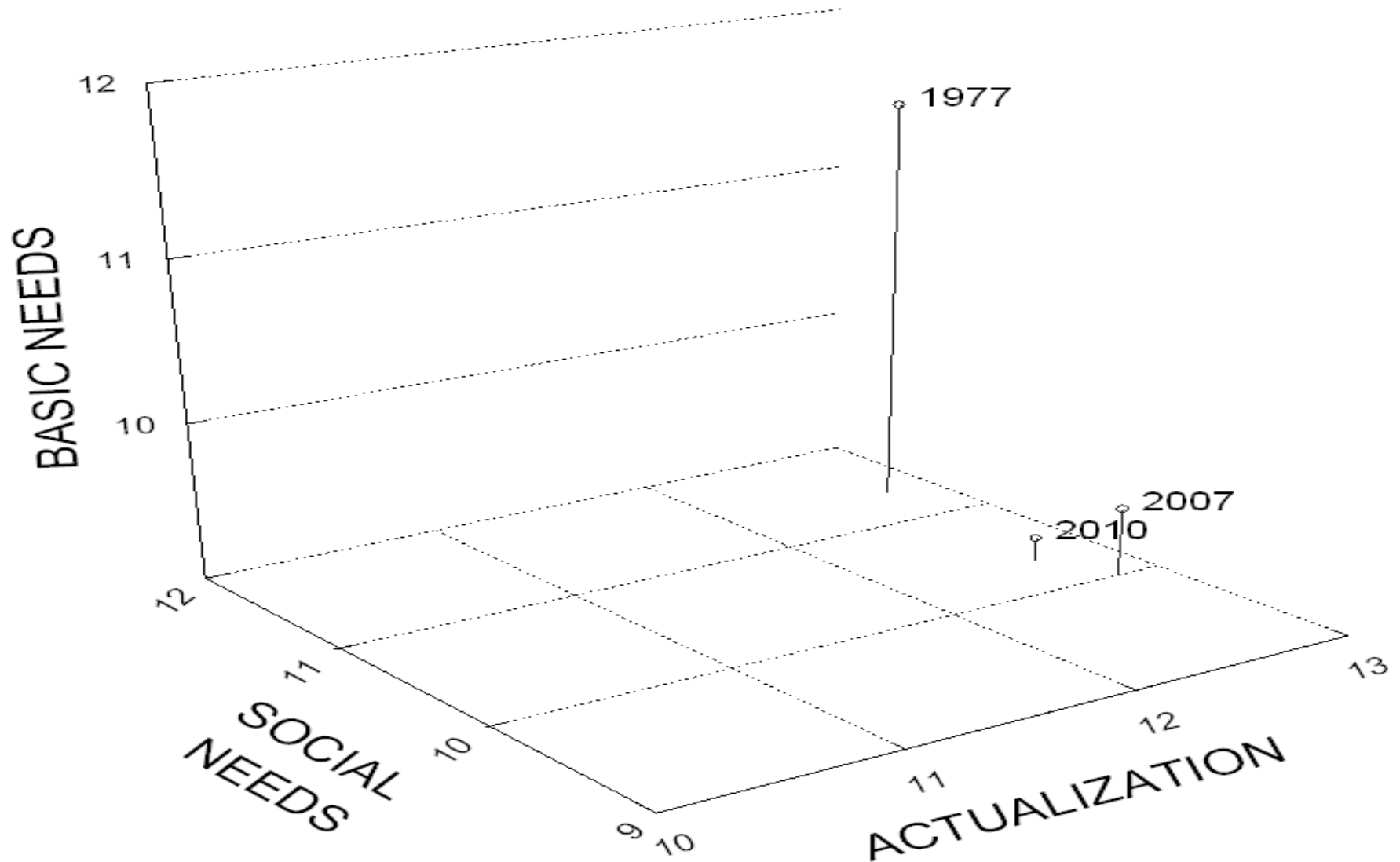
- **New England (Chatham & New Bedford, MA and Point Judith, RI) N=72**
- **Similar analyses and pre-testing of items resulted in an indicator formed from the summing 3 well being measures (How satisfied are you with your life, How satisfied are you with your physical health, and How often do you feel really happy?). These items are scaled from 1 to 5 resulting in a scale potentially ranging from 3 to 15.**
- **Analyses (see Oswald & Wu 29 Jan. 2010 Vol. 327 *SCIENCE* 576-579) have presented objective confirmation of responses to the subjective measure “In general, how satisfied are you with your life”.**

# Examples of application of measures

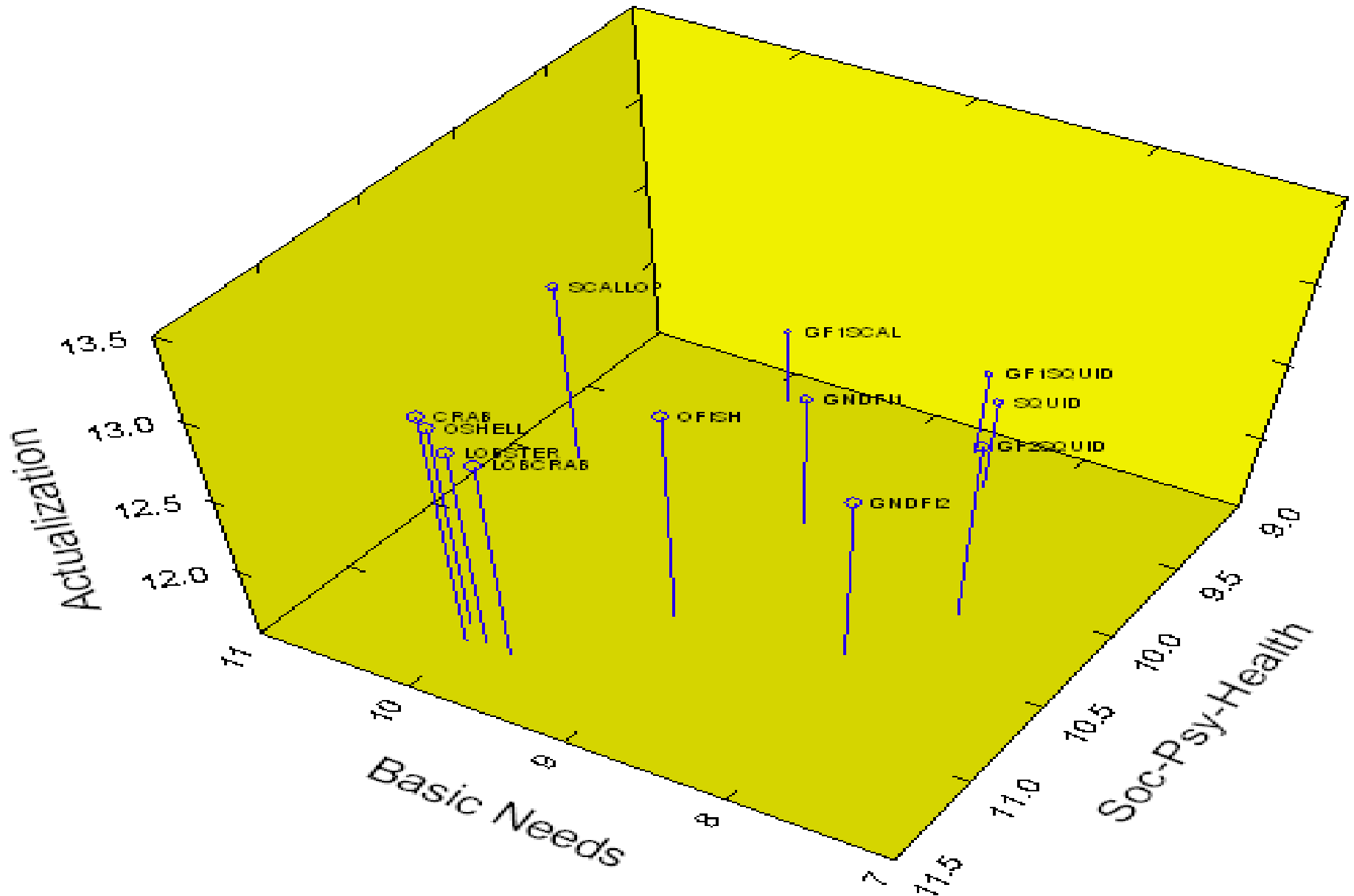
# Job satisfaction through time

N=236, Social Needs  $p < 0.005$ , Basic Needs  $p < 0.001$

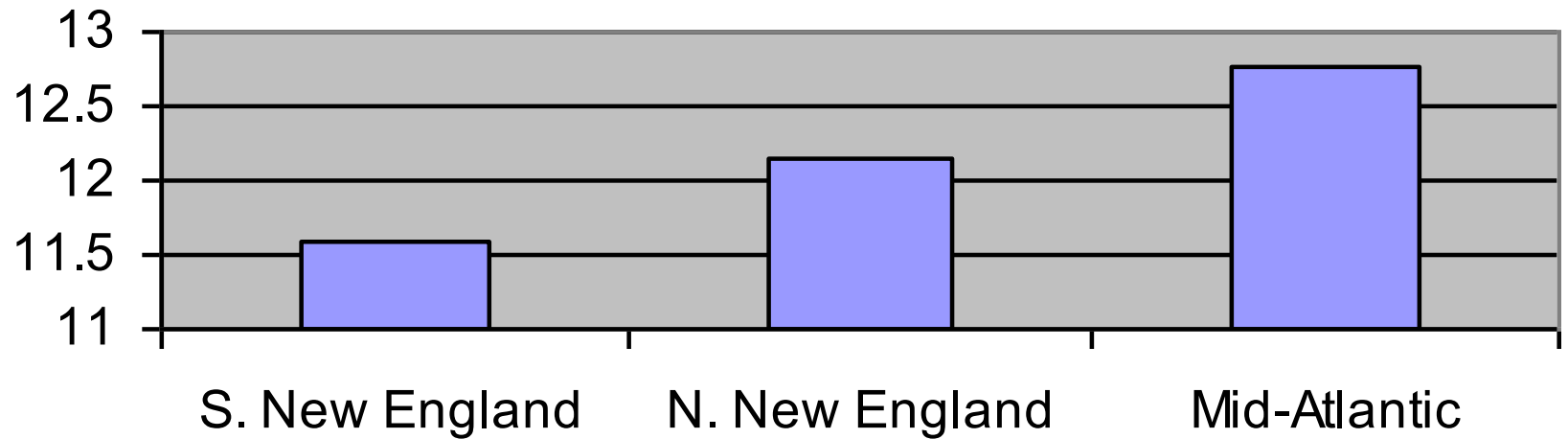
Actualization  $p > 0.005$



# Job satisfaction by fishing type: NE Region N=478

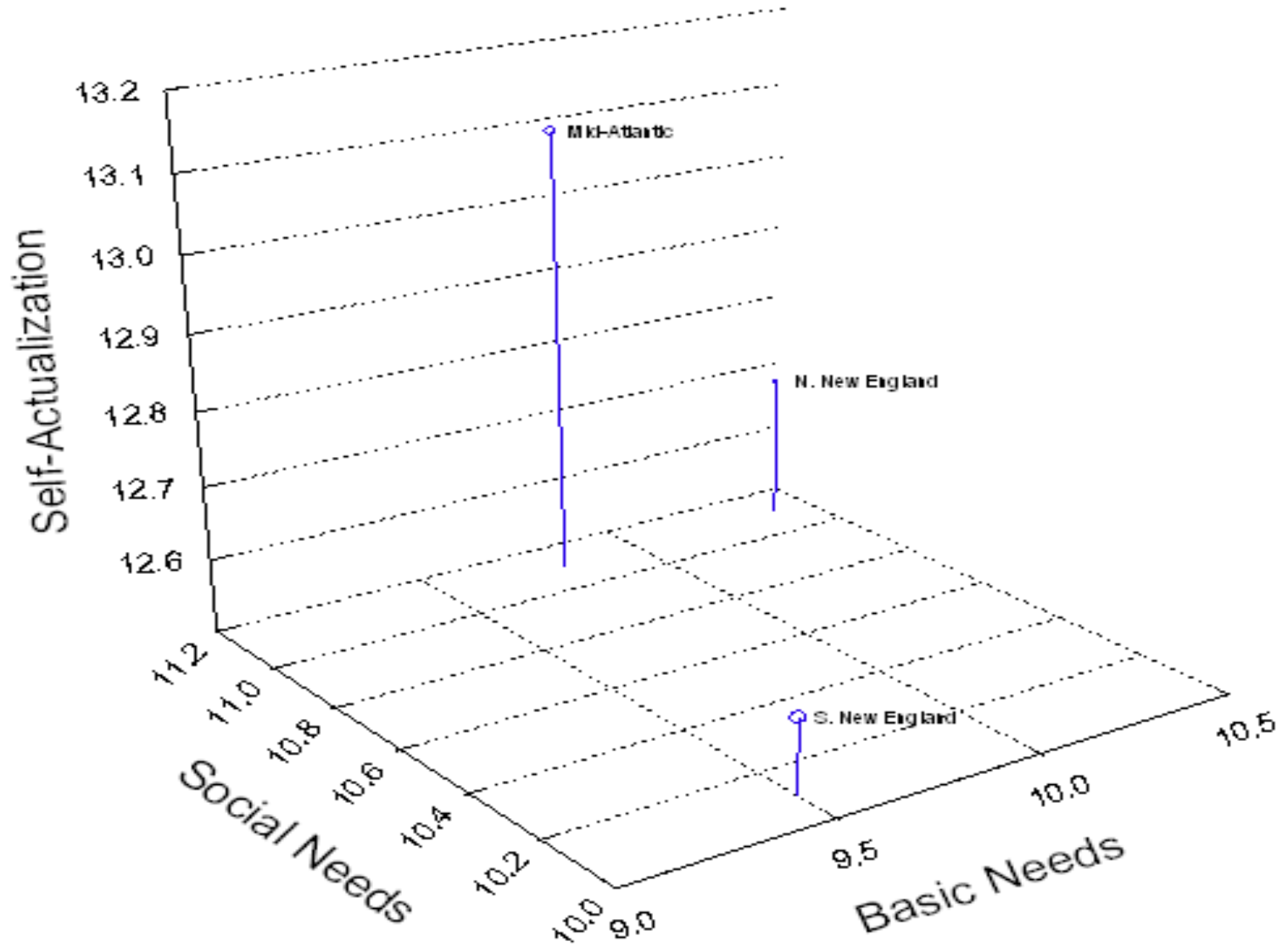


## Well-Being by Region (N=478, H=33.984, p<0.001)



# Job satisfaction by region (N=478)

ANOVA  $p < 0.05$  except actualization  $p > 0.05$ ; N=468







$XX = r$   
 $(XX) = \text{rho}$   
 $[XX] = \text{Partial } r$

**Figure 2 Causal model linking management, job characteristics and well-being.**



RITA  
DIANE

OCEAN CITY  
MD