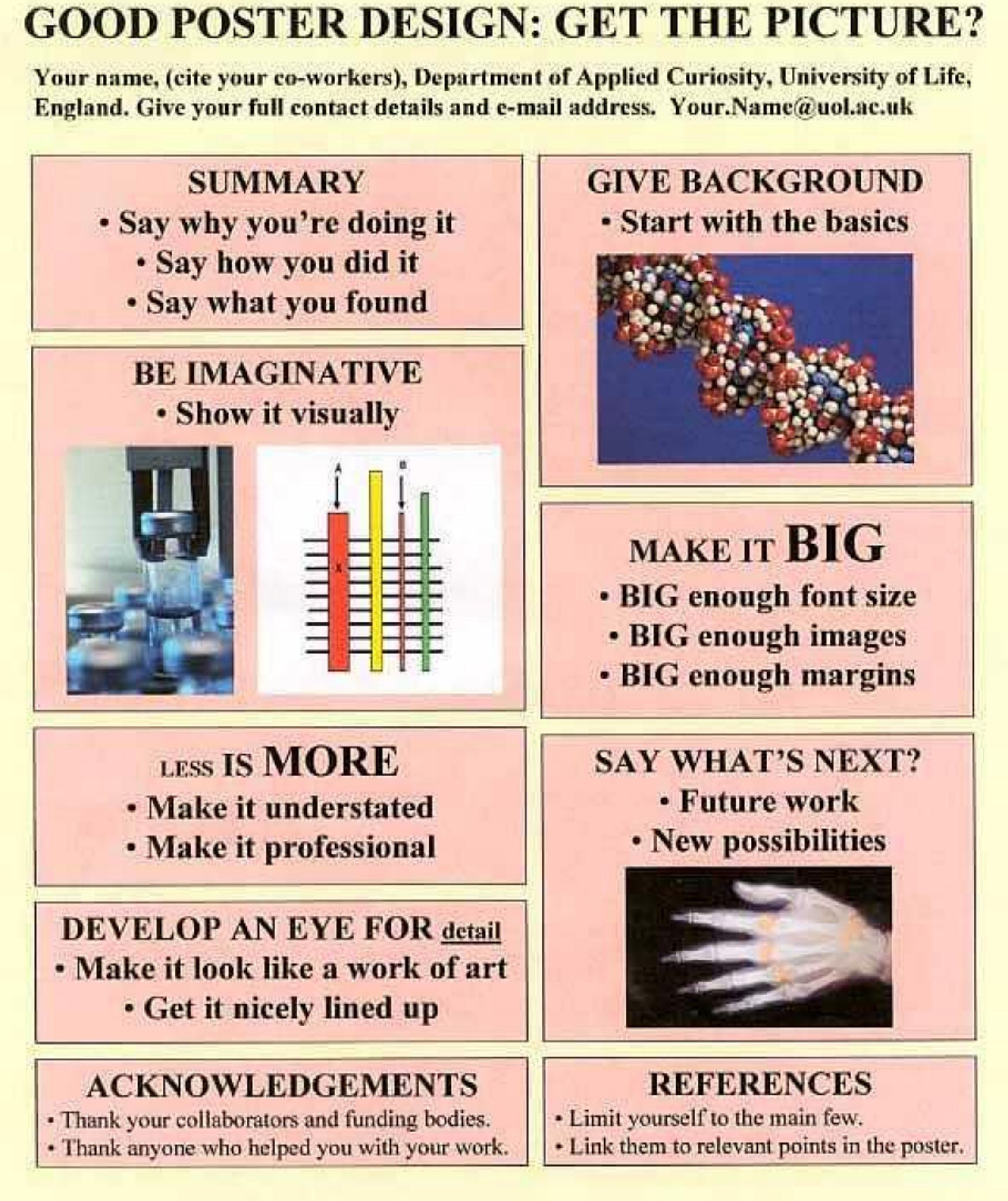
HOW TO DISTINGUISH A GOOD POSTER DESIGN FROM A BAD ONE....

THE GOOD



* Clear, concise, informative

* Strong use of visuals and headers for key points

* Context - summary, key points of interest, future possibilities

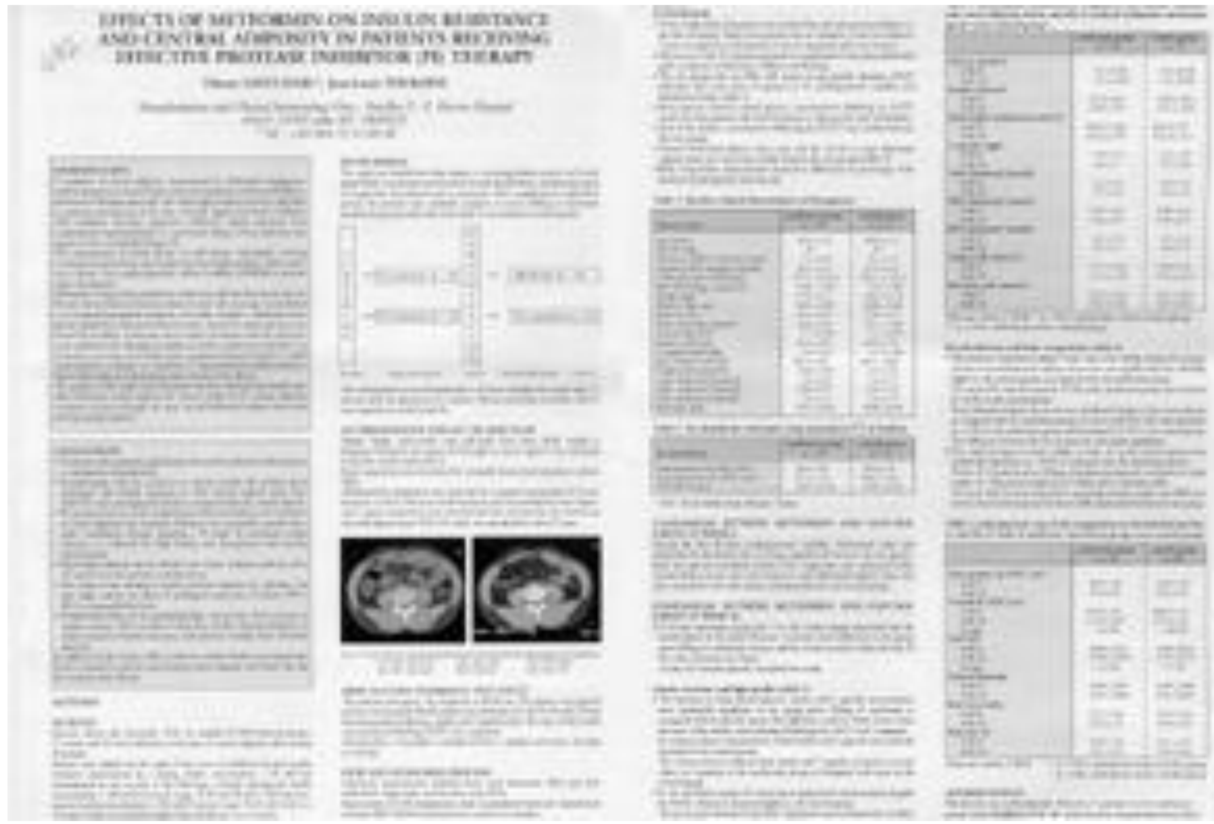
THE BAD

* No clear structure or context

* Small graphics and text, lack of design consistency

* Exclusion of key information, e.g. acknowledgements & references

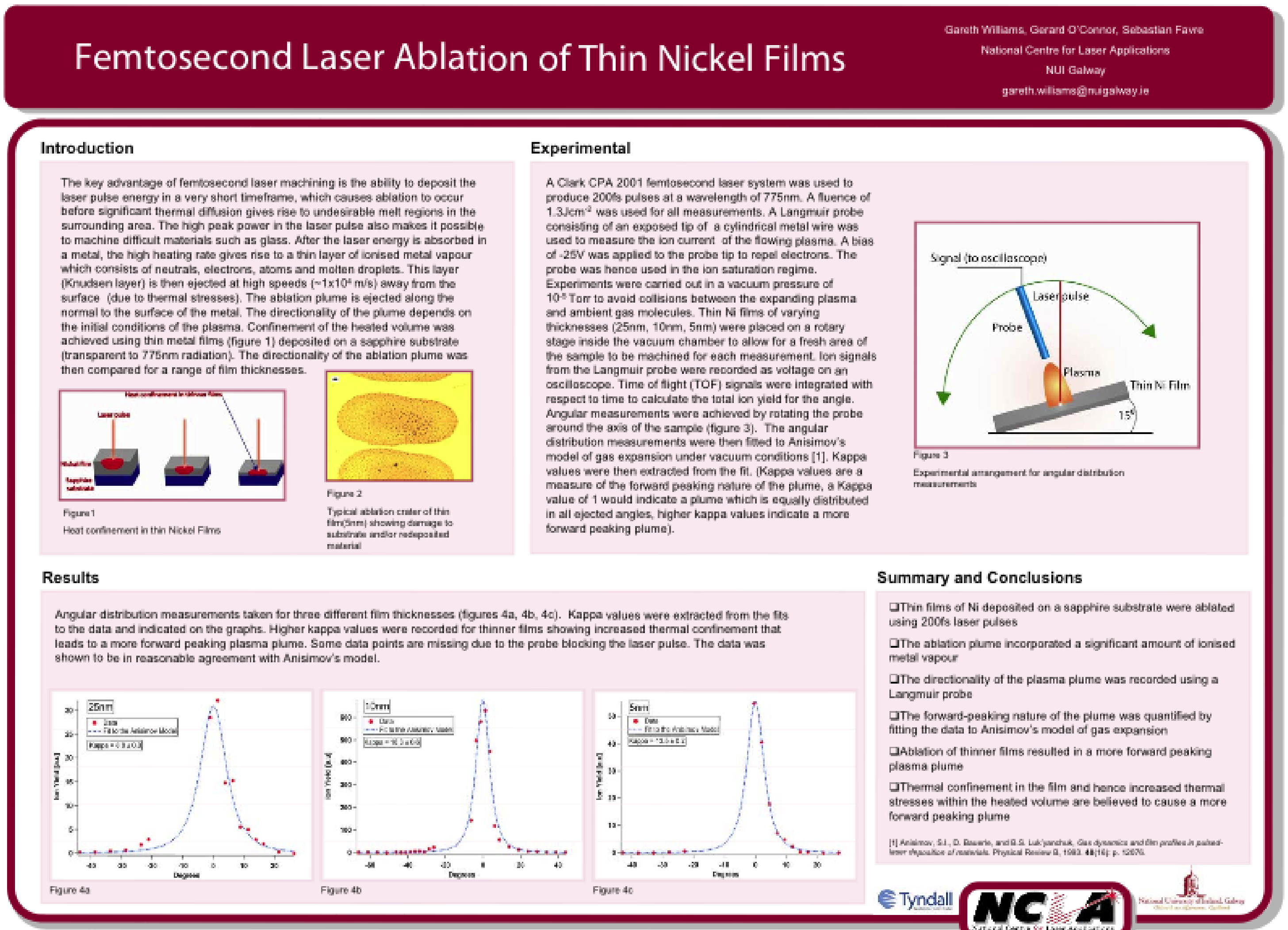
AND THE UGLY



EFFECTS OF METFORMIN ON INSULIN RESISTANCE AND CENTRAL ADIPOSITY IN PATIENTS RECEIVING EFFECTIVE PROTEASE INHIBITOR (PI) THERAPY

* Text Overload
* No hierarchy of information
* A book rather than a poster

EXAMPLE OF GOOD BASIC LAYOUT



Femtosecond Laser Ablation of Thin Nickel Films

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Introduction

The key advantage of femtosecond laser machining is the ability to deposit the laser pulse energy in a very short timeframe, which causes ablation to occur before significant thermal diffusion gives rise to undesirable melt regions in the surrounding area. The high peak power in the laser pulse also makes it possible to machine difficult materials such as glass. After the laser energy is absorbed in a metal, the high heating rate gives rise to a thin layer of ionised metal vapour which consists of neutrals, electrons, atoms and molten droplets. This layer (Knudsen layer) is then ejected at high speeds (~1x10^4 m/s) away from the surface (due to thermal stresses). The ablation plume is ejected along the normal to the surface of the metal. The directionality of the plume depends on the initial conditions of the plasma. Confinement of the heated volume was achieved using thin metal films (figure 1) deposited on a sapphire substrate (transparent to 775nm radiation). The directionality of the ablation plume was then compared for a range of film thicknesses.

Figure 1

Heat confinement in thin Nickel Films

Figure 2

Typical ablation crater of thin film(5nm) showing damage to substrate and/or redeposited material

Experimental

A Clark CPA 2001 femtosecond laser system was used to produce 200fs pulses at a wavelength of 775nm. A fluence of 1.3Jcm^{-2} was used for all measurements. A Langmuir probe consisting of an exposed tip of a cylindrical metal wire was used to measure the ion current of the flowing plasma. A bias of -25V was applied to the probe tip to repel electrons. The probe was hence used in the ion saturation regime. Experiments were carried out in a vacuum pressure of 10^{-5} Torr to avoid collisions between the expanding plasma and ambient gas molecules. Thin Ni films of varying thicknesses (25nm, 10nm, 5nm) were placed on a rotary stage inside the vacuum chamber to allow for a fresh area of the sample to be machined for each measurement. Ion signals from the Langmuir probe were recorded as voltage on an oscilloscope. Time of flight (TOF) signals were integrated with respect to time to calculate the total ion yield for the angle. Angular measurements were achieved by rotating the probe around the axis of the sample (figure 3). The angular distribution measurements were then fitted to Anisimov's model of gas expansion under vacuum conditions [1]. Kappa values were then extracted from the fit. (Kappa values are a measure of the forward peaking nature of the plume, a Kappa value of 1 would indicate a plume which is equally distributed in all ejected angles, higher kappa values indicate a more forward peaking plume).

Figure 3

Experimental arrangement for angular distribution measurements

Results

Angular distribution measurements taken for three different film thicknesses (figures 4a, 4b, 4c). Kappa values were extracted from the fits to the data and indicated on the graphs. Higher kappa values were recorded for thinner films showing increased thermal confinement that leads to a more forward peaking plasma plume. Some data points are missing due to the probe blocking the laser pulse. The data was shown to be in reasonable agreement with Anisimov's model.

Figure 4a

Figure 4b

Figure 4c

Summary and Conclusions

- Thin films of Ni deposited on a sapphire substrate were ablated using 200fs laser pulses
- The ablation plume incorporated a significant amount of ionised metal vapour
- The directionality of the plasma plume was recorded using a Langmuir probe
- The forward-peaking nature of the plume was quantified by fitting the data to Anisimov's model of gas expansion
- Ablation of thinner films resulted in a more forward peaking plasma plume
- Thermal confinement in the film and hence increased thermal stresses within the heated volume are believed to cause a more forward peaking plume

[1] Anisimov, S.I., D. Bauerle, and B.S. Luk'yanchuk, *Gas dynamics and film profiles in pulsed-laser deposition of materials*. Physical Review B, 1993. 48(16): p. 12076.

Photonics Ireland 2007

LAYOUT COMPARISON

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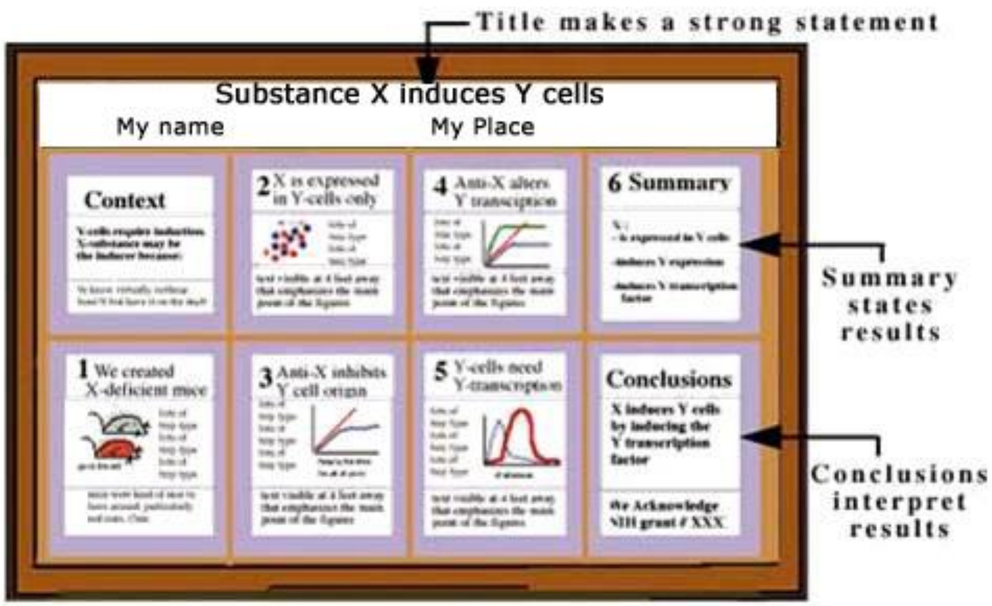

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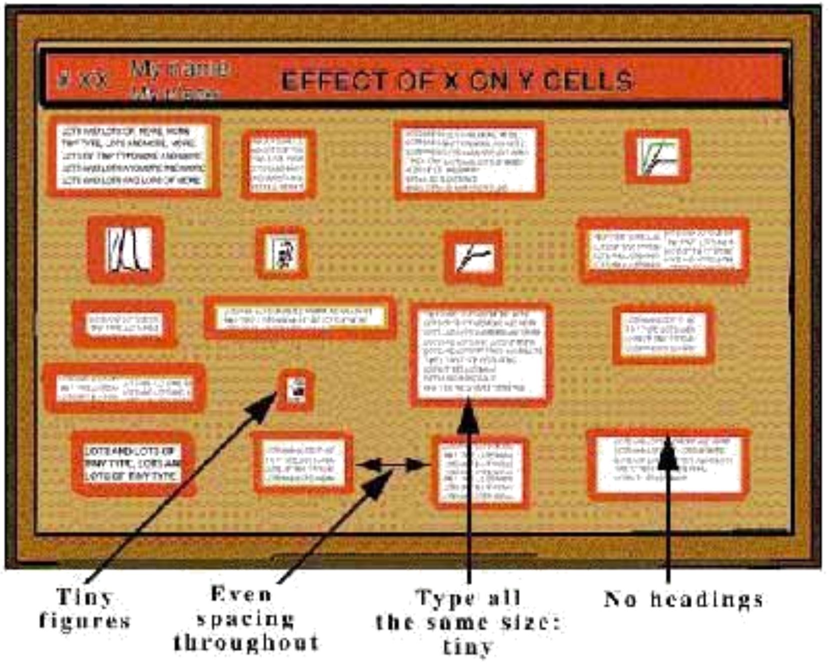

Source: http://www.ncsu.edu/project/posters/NewSite/CreatePosterGraphics.html

TIPS FOR SUCCESS

DO THIS

* **Emphasize using visuals** - graphic elements should dominate.

* **Use graphics, cartoons, and figures instead of text**. Remember, a picture is worth a thousand words.

* **Use color to emphasize** or to link words and images together.

* **Use bold lines and obvious pattern** or color to distinguish figures.

* **Use graph and table formats** that portray the data without reference to extensive keys.

* **Write explanations** directly on the figures.

* **Minimize abbreviations** and cross references.

NOT THIS

* **Visually de-emphasize** to obscure your message.

* **Portray the main points in the smallest type**.

* **Avoid color** - think grey or monochrome.

* On graphs, **use thin lines or bars** with patterns that are **hard to distinguish**.

* **Make all figures** so **small** that the important information is invisible from 2m away.

* **Use complicated legends** far that require the reader to constantly look back and forth between figure and legend.

* **Use lots of acronyms and shorthand** that the viewer has to memorize or constantly look up.

EXAMPLE OF AWARD-WINNING POSTER

NC STATE UNIVERSITY

Southern Flounder Exhibit Temperature-Dependent Sex Determination

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Introduction

Southern flounder (*Paralichthys lethostigma*) support valuable fisheries and show great promise for aquaculture. Female flounder are known to grow faster and reach larger adult sizes than males. Therefore, information on sex determination that might increase the ratio of female flounder is important for aquaculture.

Objective

This study was conducted to determine whether southern flounder exhibit temperature-dependent sex determination (TSD), and if growth is affected by rearing temperature.

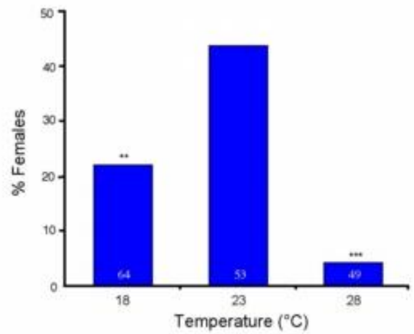
Methods

- Southern flounder broodstock were strip spawned to collect eggs and sperm for *in vitro* fertilization.
- Hatched larvae were weaned from a natural diet (rotifers/*Artemia*) to high protein pelleted feed and fed until satiation at least twice daily.
- Upon reaching a mean total length of 40 mm, the juvenile flounder were stocked at equal densities into one of three temperatures 18, 23, or 28°C for 245 days.
- Gonads were preserved and later sectioned at 2-6 microns.
- Sex-distinguishing markers were used to distinguish males (spermatogenesis) from females (oogenesis).

Histological Analysis

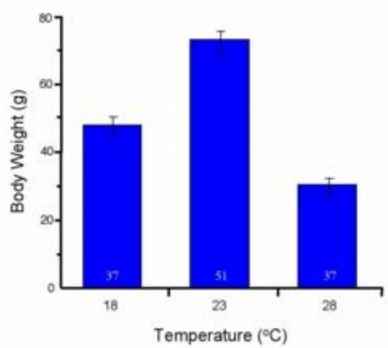
Male Differentiation   Female Differentiation

Temperature Affects Sex Determination

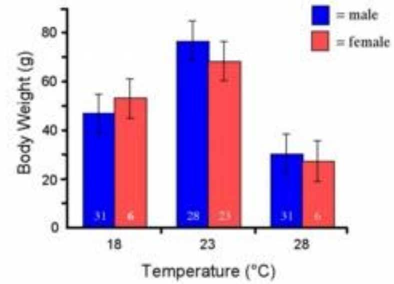


(**P < 0.01 and ***P < 0.001 represent significant deviations from a 1:1 male:female sex ratio)

Rearing Temperature Affects Growth



Growth Does Not Differ by Sex



Results

- Sex was discernible in most fish greater than 120 mm long.
- High (28°C) temperature produced 4% females.
- Low (18°C) temperature produced 22% females.
- Mid-range (23°C) temperature produced 44% females.
- Fish raised at high or low temperatures showed reduced growth compared to those at the mid-range temperature.
- Up to 245 days, no differences in growth existed between sexes.

Conclusions

- These findings indicate that sex determination in southern flounder is temperature-sensitive and temperature has a profound effect on growth.
- A mid-range rearing temperature (23°C) appears to maximize the number of females and promote better growth in young southern flounder.
- Although adult females are known to grow larger than males, no difference in growth between sexes occurred in age-0 (< 1 year) southern flounder.

Acknowledgements

The authors acknowledge the Saltonstall-Kennedy Program of the National Marine Fisheries Service and the University of North Carolina Sea Grant College Program for funding this research. Special thanks to Lea Ware and Beth Shimps for help with the work.

REVIEWER'S COMMENTS

POSITIVE POINTS

* The **title** conveys the main **message instantly**.

* **Context** and **objectives** are made **clear.**

* **Methods** are **concise**.

* **Graphs are interpreted by their titles.** One can read the titles and trust the authors, or examine the graphs in more detail.

* **Results and conclusions are concise** and relate back to objectives.

* **Color scheme** is very **simple** and pleasing.

* **Font is large** enough everywhere, including figures.

NEGATIVE POINTS

* **Results and conclusions do not relate back to context (Introduction).** It would be nice to see a statement of how the findings relate to aquaculture.

* Some viewers have noted that the **title could be more direct**: "Temperature Determines Sex of Southern Flounder"

* **Title font is on the small side** - could be larger.

* Some viewers have felt there is **too much white space** between the columns. It could be reduced somewhat, but not too much.

Source: Hess, G.R., K. Tosney, and L. Liegel. 2006. Creating Effective Poster Presentations. http://www.ncsu.edu/project/posters